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THE

FRUIT GROWER'S

HAND BOOK.

A CONCISE MANUAL OF DIRECTIONS

FOR THE

SELECTION AND CULTURE OF THE BEST HARDY FRUITS

IN THE

GARDEN OR ORCHARD.

"EXPERIENTIA PROBATA."

BY WILLIAM G. WARING.

BOALSBURG, CENTRE COUNTY, PA.
1851.

LUTZ & SCHEFFER, PRS.—HARRISBURG.

Preface.

IN a new country, where successive generations have been sternly engaged in winning lands from the forests on which to subsist, it is not surprising that, amid pressing wants and dangers, the art of cultivating Fruit should be almost lost. Such a state of things is now gone by with us, and of late years America has led the advance in the universal and rapid progress of Horticulture.

Every man is now gathering from his neighbor experience in the management of trees. Numerous horticultural societies have been lately formed, where knowledge is collated and diffused, and the comparative value of old and new fruits correctly estimated; and the whole is concentrated in a National Congress of Fruit Growers, an Institution of inestimable service to every lover of fine fruit.

In no country is the labor of the Culturist so abundantly rewarded as in our own. The poorest owner of a lot, too rocky or too small for other cultivation, may pluck and eat from his own trees, grown with trifling care, fruits that a European Monarch might vainly envy.

Such fruits my happy home can boast,
As once in Eden's garden grew;
But little toil, and little cost,
For all their wealth of taste and hue.

The wandering habits and impatient character of the American peo[illegible]le, prevent, in a great degree, the embellishment of Country homes by fruit plantation. It is preferred to pay high prices for the marketed fruit. This is the worst of bad economy; cheating the seven senses.

The salutary effect of a free and regular use of well ripened fruits is well known, but not fully estimated. The remarkable longevity of those who have passed their childhood and formed their habits in Europe, might be shared perhaps in a greater degree by their descendants here, did they use less of animal food and more of Nature's inviting preparations.

Every care has been used to make the directions contained in this work, complete, reliable, and fully understood in their consequences. References are made by figures, *passim*, to the Chapters on the LAWS OF GROWTH, which give the rationale of the operations. (*See Art. I. 2nd part.*)

All items of practical value found in pomological writings, or in the author's notes, accumulated during many years of diligent attention to fruit culture and the wants of planters, have been condensed and posted into this volume. For important and valuable assistance, most kindly rendered to the author during its preparation, especially by Dr. Joseph Henderson of Kishacoquillas, Genl. Reuben C. Hale of Lewistown, and Hon. Geo. W. Woodward of Wilkesbarre, gentlemen whose life and character illustrate the amenity of horticultural pursuits, his acknowledgements and thanks are particularly due.

Introduction.

NOTHING is more universally desired than an abundant and continuous supply of delicious fruits. They are, in all their varied excellence, truly God's own gift to man; once supplied without a care, and still yielded freely at the nominal price of health-sustaining toil. And so infinite is the variety of fruits,—in season, color, fragrance, flavor, form, and use, and mode of growth, that the eye and the palate have ever fresh enjoyment; and every caprice of taste is gratified.

For fruits are the *luxuries* of *Nature*. Unlike every thing else that is called a *luxury*, they are purely beneficial. The bursting buds, and bright blossoms of spring, gladden the heart like the smiles of youth and innocence—soft lushy shades, fragrant juicy tempting fruits, green grass, pure air, open heavens, the music of birds—these are among the enjoyments of the happy healthful rural culturist. He finds new tributes daily springing to reward his pleasant labor. He sees "through Nature up to Nature's God."—The sweat of his brow removes the 'thorns' and the 'curse,' and Providence smiles with favor on her votary.

Thousands wish to know, intelligently, what *to do* and what *to avoid* in the culture of those plants, which

"———————— (piteous Heaven agreeing,)
Man brought with him through Eden's closing gates;"

Yet there are some owners of broad fields who would not give a look or bend a finger to protect them. They should grow spontaneously! Must Nature, while imposing toil as the price of every crumb of food or shred of clothing, bestow her choicest gifts for naught? It is not even to be desired. Who that has made home to be a little Paradise of fruits and flowers, ever regrets the care, or the trouble? These are component of his enjoyment; besides improved health and greater zest for life.

There is a *moral* advantage in the culture of fruits and flowers,

(the first employment in which man was ever engaged.) Those who add recreation in the garden to labor in the field or the closet, are everywhere the most virtuous and beneficent, as well as the healthiest and happiest of mankind.

Violations of Nature's design, are seen in the tears of the child, gloating over fruits which it may not touch, or sickening with green or half ripe substitutes; in the crime and shame of yielding to a strong temptation,—the golden burthen of a neighbor's tree; and in unnatural and pernicious thirst for fermented drinks, an appetite scarcely formed by those who enjoy a constant supply of fresh juicy fruits throughout the year.

When Doctor Dwight first removed to New Haven, but little fruit was raised there. He urged his neighbors to plant trees, but they said it was of no use, for the boys would steal all the fruit.(53) "Plant more," was his answer, "make good fruit plenty." Fifteen years afterwards, he pointed to the abundance of fruit, and the absence of pillage then enjoyed, in proof of his principle. His memory is green.

The value of a matured fruit garden, to the planter and owner, is above price. Money could not procure such another. Besides it is a part of his home, and almost of himself; a quiet world of pleasure.*

Happy they who cultivate a taste for these pure enjoyments!—happy the children, whose school is a garden!—(69)

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* "Examine all Religions, all History, even all Fable, and not one among them all that does not assign man in his origin to an Eden, that is a garden; there is not one that does not, after death, conduct him to an Elysium, a garden of fruits and living waters, of love, and safety, and serene skies. So true is it that man, in his most delicious reveries, has not been able to devise anything more charming. A spot in the sunshine, protected from evil-doers, embellished by vegetation, animated by the presence of birds, and the humming of bees, made sacred by the work of the hands, and made holy by the presence of the Creator; the habitation of the family, and the abode of love and friendship. It is in such an abode that Human Nature has always placed happiness." LAMARTINE.

THE CIRCLE OF FRUITS.

What are the best sorts for me to plant? This is the first question asked by the beginner in fruit culture, and it is a question that *one* cannot well answer for another in a direct manner.

The following Tables and Descriptions are arranged with a view to enable the reader to select readily and understandingly, for himself, such kinds as will meet his taste and wishes. By selecting a proper proportion of sorts to ripen in each week or month, he will avoid fits of "feast and famine."

In making up an assortment, a variety of *flavor* and *kind* should be chosen, as well as of *season*. While the planter himself may have particular preferences, the dear ones of his home may have others. Whoever has eaten of the finest cherries and strawberries on the first warm days of summer,—of ripe fresh apricots in the heats of harvest time,—a delicious Bartlett, or a juicy rare-ripe in September,—or drank the honied wine from a cluster of well ripened Catawbas in October, must desire to include in his own gardens a constant succession of such fruits. Each kind can then be allowed to become perfectly ripe, and will be used at the proper season, for which nature has wisely designed it. If some kinds are not adapted to the location, (41) a more complete variety should be planted of those that are; thus, a good collection of plums may often supply the want of peaches. Some kinds of fruit, not of the best quality for eating, are most valuable for drying and preserving, and will not only look as well as the austere apologies that often serve to "grace the board," but will also gratify the palates of those who sit around it.

TABLE 1st.

Exhibiting the order in which the common cultivated fruits successively come to maturity.

STRAWBERRIES,	(the Alpines bear well in autumn,)	June 1 to July 10.
CHERRIES,		June 1 to Sept.
CURRANTS,	(will hang on quite late if covered,)	June 20 to Aug.
MULBERRIES,		July 1 to Aug.
GOOSEBERRIES,		July 1 to Sept.
APRICOTS,		July 1 to Aug. 15.
RASPBERRIES,	(some varieties bear in autumn,)	July 10 to Aug.
PEARS,		July 10 to May.
APPLES,		July 10 to next Jul

BLACKBERRIES,		July 20 to Sept.
PLUMS,		July 20 to winter.
PEACHES,		Aug. to winter.
NECTARINES,		Sept. 1 to Oct.
GRAPES,	(earlier under glass,)	Sep.to midwinter.
QUINCES,		Sept. to Nov.
FILBERTS,		Sept. 10.
ALMONDS,		Sept. 15.
RHUBARB,	(used like fruit, for early tarts,)	April 1.

TABLE 2nd.

Showing the order in which VARIETIES *successively come into Season, and the Duration of the Winter Fruits,—adapted to the latitude of Pennsylvania.*

Note.—The period of ripening, especially of the earliest fruits, is sometimes varied or reversed by the peculiar forwardness or lateness of the season.

April 1. EARLY SCARLET RHUBARB.

May 1. VICTORIA or GIANT RHUBARB.

June 1. STRAWBERRIES, Early Large Scarlet.
CHERRIES, Indulle, Early Purple Guigne, Baumann's May.

June 10. STRAWBERRIES, Early Hudson, Prolific Hautbois.
CHERRIES, Early White Heart, Coe's Transparent, Belle of Orleans, Kentish, Knight's Early Black, May Duke.

June 15. STRAWBERRIES, Hovey, Black Prince, Burr's Pine, Rival Hudson, Boston.
CHERRIES, Black Tartarian, Rockport Bigarro, Belle de Choisy, Elton.

June 20. CURRANTS, Early Red.
STRAWBERRIES.
CHERRIES, Black Eagle, Downton, Reine Hortense, Large Black Bigarro.

June 25. CURRANTS, Red and White Dutch.
CHERRIES, Burr's Seedling, Manning's Mottled, Carnation.

July 1. MULBERRIES.
CURRANTS, White Grape, Cherry.
CHERRIES, Carnation, Napoleon Bigarro.

July 5. APRICOTS, Early Golden, Large Early, Roman.
GOOSEBERRIES, Early sorts.
RASPBERRIES, American.
MULBERRIES, and latest STRAWBERRIES.
CHERRIES, American Amber, Florence, Sparhawk's Honey, China Bigarro, Late Duke.

July 10. RASPBERRIES, Antwerps, Fastollf, Franconia.
GOOSEBERRIES,—CURRANTS.
CHERRIES, Transparent Guigne, Gridly, White Ox-Heart.
APRICOTS, Breda, Black.

July 15. PEARS, St. John's.
APPLES, Juneting.
GOOSEBERRIES, later sorts, with RASPBERRIES and CURRANTS.
CHERRIES, Downer, Elkhorn, Morello.
APRICOTS, Orange.

July 20. PEARS, Muscat, Madeleine.
APPLES, Yellow Harvest, Bough.
CURRANTS, Victoria, &c. with GOOSEBERRIES.
BLACKBERRIES.
APRICOTS, Moorpark, Peach.
CHERRIES, Wilkinson, Sweet Montmorency, Buttner's Yellow.
PLUM, Primordian.

Aug. 1. GOOSEBERRIES, latest.
APRICOTS.
PEARS, Jargonelle, Moyamensing.
APPLES, Early Strawberry, Red Astrachan, Bevan.
CHERRY, Belle Magnifique.
PLUMS, Cherry, Henrietta, Howell's Early.

Aug. 10. PEARS, Bloodgood, Osband.
APPLES, Summer Rose, Sine Qua Non, Queen, Codlin.
PLUMS, White Orleans, Peach Plum, Yellow Gage, Imperial Ottoman.
CHERRY, Merveille de Septembre.
GRAPE, Early Black July.
BERRIES.

Aug. 15. PEACH, Early Tillotson.

Aug. 15. PEARS, Belle of Brussels, Summer Bon Chretien, Julienne.
APPLES, Early Joe, Benoni, Summer Bellflower.
PLUMS, Red Magnum Bonum, McLaughlin, Duane's Purple.

Aug. 20. PEACHES, Serrate Early York, Cole's early Red, White Imperial, Walters' Early.
PEARS, Rostiezer, Summer Francreal, Blood, Kinsessing, Ott, Summer Doyenne.
GRAPE, Sweet Water.
APPLES, Hare, Williams' Favorite, Blush, Lyman, Siberian Crab,
PLUMS, Prune, Red Prune, Washington, Red Gage Denniston Superb.

Sept. 1. PEACHES, Royal George, Coolidge, Geo. IV, Crawford's Early, Yellow Rareripe, Haine's Early Red.
PEARS, Tyson, Dearborn, St. Ghislain, Pratt, Bilboa, Muscadine, Gansel's Bergamot, Hampden's do.
GRAPES, Miller, Cluster.
APPLES, Golden Sweet, Porter, Oldenburg.
PLUMS, Green Gage, Mirabelle, Black Nectarine, French Prune, Purple Favorite, Imperial Gage, Columbia, Yellow Egg.

Sept. 10. GRAPES, Madiera, Clinton.
NECTARINES, Early Violet, Downton, Tawny.
PEACHES, Grosse Mignonne, Jaques Rareripe, Bellegarde.
PLUMS, Smith's Orleans, Mamelonne, Purple Gage, Schenectady, Hulings, Bingham, Red Diaper.
PEARS, Stevens' Genesee, Flemish Beauty, Bartlett, Brandywine, Fondante d'Automne, Beurre Amaulis, Harvard, Cushing, Washington.
APPLES, Garden Royal, Fleiner, St. Lawrence, Summer Pearmain.

Sept. 15. GRAPES, Isabella.
NECTARINE, Elruge.
PEACHES, Morris White, Oldmixon Cling, Oldmixon Free, Scott's Nonpareil, Rodman's Cling, Snow, Red Cheek Malacaton, Nivette.
PLUMS, Lombard, Scarlet Gage, Bleecker's Gage, Reine Claude de Bavay, Jefferson, Gen. Hand.

Sept. 15. PEARS, Canandaigua, Ananas, Henry IV, Dunmore, Andrews, Calebasse, Seckel, Louise Bonne.
APPLES, Sassafras Sweet, Lowell, Alexander.
ALMONDS.
STRAWBERRIES, (Alpine) & RASPBERRIES, (monthly)

Sept. 20. GRAPES, Catawba.
PEACHES, Brevoort, Lemon Cling, Large white Cling, Blood Cling, Late Admirable, Bergen, Columbian, Late Red Rareripe.
PLUMS, Bingham, Damson, Autumn Gage, Manning's long blue Prune, St. Martin's Quetsche.
PEARS, Heathcot, Paradise d'Autumne, Long Green, Buffum, Lodge, Butter.
APPLES, Holland Pippin, Gravenstein, Autumn Strawberry, Pound Sweet, Dyer, Jersey Sweet, Pumpkin Russet, Caleb.

Oct. 1. PEACHES, La Grange, Ward's late free, Heath Cling, Druid Hill, Tippecanoe Cling.
GRAPES, Isabella and Catawba, fully ripe.
PLUMS, Coe's Golden Drop, Coe's late Red, Prune d'Agen.
PEARS, Montigny, Boussock, Goubault, Lamy, Fulton, Brown Beurre, Marie Louise, Anjou, Capiaumont, Swan's Orange.
APPLES, Hawley, Jewett, Spice, Blenheim Pippin, Mother, Menagere, Ross Nonpareil, Northern Sweet, Autumn Swaar.

Oct. 15. PLUMS, Frost Gage, Ickworth Imperatice.
PEARS, (*keeping till Dec. or Jan.*) Angouleme, Dix, Urbaniste, Diel, Van Mons, Napoleon, Sieulle.
APPLES, (*to Dec. & Jan.*) Butter, Republican, Smokehouse, Fall Pippin, Rambo, Vandevere, Detroit, Wick, St. Lawrence.

Nov. 1. PEARS, (*to Jan. and Feb.*) Oswego, Winkfield, Catillac, Nelis, Pound, Lawrence, Spœlberg, Columbia, New Brown Beurre, Cadette, Forelle.
APPLES, (*to Jan. and Feb.*) Twenty Ounce, Fameuse, Dutch Mignonne, Minister, Hubbardson, Melon, Wine, Strawberry, Golden Russet, Roman Stem, Golden Reinette, Golden Pippin.

Dec. 1. PEARS, (*to Feb. and March.*) M'Laughlin, Prince's St.

Germain, Lewis, Aremberg, Soldat Laboreur, Glout Morceau, Passe Colmar, Chaumontel, Worcester.

Dec. 1. APPLES, (*to Feb. and March.*) Bellflower, Gate, Gloria Mundi, Baily Sweet, Fallowater, Borsdorfer, Ewalt, Newark Pippin, Jonathan, Peck's Pleasant, Wagner, Ribstone, Baldwin, Winesap, Wells, Tolman, Danvers, Rhode Island Greening.

Jan. 1. PEARS, (*to Spring,*) Easter Beurre, Josephine de Malines.

APPLES, (*to March and April,*) Red Canada, Westfield, Blue Pearmain, Hereford Pearmain, Pomme Gris, Bourassa, Spitzenburg, Michael Henry Pippin, Domine, Ladies' Sweet, Canada Reinette, Swaar, Green Sweet.

Feb. 1. PEARS, (*to Spring,*) Beurre Ranz, Suzette de Bavay.

APPLES, (*to Spring,*) Winter Sweet Paradise, Lady, English Russet.

Mar. 1. APPLES, (*to June and July,*) Newton Pippin, Carthouse, Black Jack, Rawle's Jannet, Spy, Tewksbury, Boston Russet.

Alphabetical Descriptive List,

Of the most approved and popular varieties of Hardy Fruits.

IN the following descriptions, the main points of distinction between the different varieties are shown as obviously as possible. Many are equal in excellence, all things considered, but of an excellence different in kind.

Next to the most common Synonymes, (if any,) the most prominent or peculiar characteristic of the fruit is given. Following this in succession, and briefly,—size, shape, color, flesh, flavor, growth, bearing habit, soil, season.

The limits of the book do not allow minute detail. The larger works of Downing, Thomas, and Cole, contain accurate and close descriptions, and it is hoped that this little treatise will introduce those excellent works to many readers. Among Periodicals, Downing's Horticulturist, ($3.00) Hovey's Magazine, (2.00) The Cultivator, (Thomas) ($1.00) and the Genesee Farmer, (50c) give the latest reliable information developed by the numerous societies and amateur cultivators, of late years so industriously and usefully working. The low price of the last is not the measure of its excellence.

These descriptions, with the preceding tables, will enable the reader, by a concise exhibition of the main points of merit and demerit, to select understandingly, to determine the names of sorts already in bearing, and by the growth to distinguish in many cases the genuineness of young plants as soon as received; thus preventing one of the most vexatious of disappointments. The "shoots" described are understood to be those of last year's growth. They are liable to vary in appearance from circumstances of shade, exposure, &c. (16.) The nomenclature of Downing is followed as the highest authority in this country.

☞ Names of sorts of the highest and most unquestionable excellence, are in **Bold Face.** Kinds of equal merit perhaps, but less generally approved, are in **Black Type,**—and the rest, less valuable, or less certainly known, are in *small type.*

THE ALMOND.

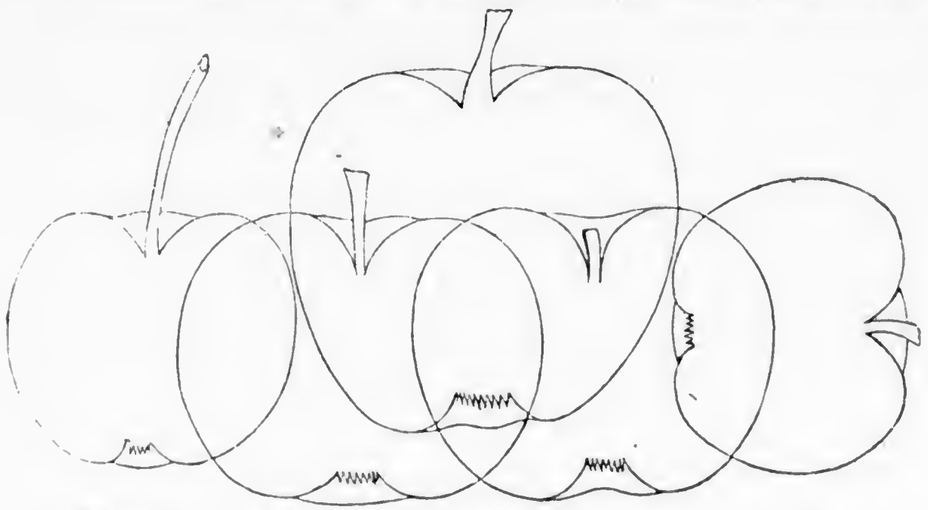
THE Almond is indigenous in Asia and Northern Africa. It is frequently mentioned in the books of Moses. The tree is ornamental; its blossoms are larger and appear rather earlier than those of the Peach or Plum, immediately following the Apricot. The wood, (excepting some varieties,) is quite hardy; but owing to the early period of bloom, the crop is precarious in our climate. The kernel is the only edible part; it is covered with a rather thin shell, and this is encased in a leathery or woolly husk, which opens in drying. The fruit should be thoroughly dried before it is stored away.

In some soils the kernels do not fill well. Situations most suitable for the Peach are preferred for the Almond, and it is considered best to have it worked (budded) on the Plum stock.

The **Common Sweet Almond,** and the **Long Hard Shell,** are the hardiest and most productive varieties, but there are several, some with bitter kernels. The *Dwarf Double Flowering Pink Almond,* is a well known ornamental shrub; the *Dwarf White* is less common; and the very showy *Large Double Flowering,* is perhaps still more rare; besides the beauty and profusion of its very large flowers, it possesses the extra merit of bearing "a good small hard shell almond."

THE APPLE.

Comparative outlines of five varieties of Summer Apples, quarter size.



Early Strawberry. | Yellow Harvest. | William's Favorite. | Red Astrachan. | Early Joe.

AMERICAN APPLES are the finest in the world. Throughout the Northern, Middle and Western States, the trees flourish in the greatest perfection. Unpruned seedling trees live more than a century, (15) and there are bearing trees in the Eastern States more than 200 years old. All varieties must have originated from the wild Crab of Europe, yet a diversity of sorts was known at an early age. The Romans had varieties of 'melimala,' (*honey apples*, sweet kinds for eating,) and different culinary sorts. In England, where vineyards are not profitable, cider is the substitute for wine as a common drink: and Herefordshire, the "orchard county," is especially celebrated for the extent of the orchards with which it is nearly covered, presenting at the flowering season,

"*One boundless blush, one wide empurpled bloom.*"

European apples generally become too acid in this climate, while American apples in England, do not attain their flavor. Apples of American growth are greatly preferred in foreign markets, and in the city of London, the market of the world, they sell at extravagant prices.

The innumerable orchards of seedling trees, planted in the new settlements of this country, have originated numberless new varieties; and from among these, kinds of the highest value are every year discovered among the contributions to Horticultural Shows;

where they are compared with the finest known sorts, and, if superior, are rapidly disseminated. So great are the improvements and the progress of modern times in this, as well as in all other departments of economy! An improved fruit, which a century ago would probably have remained in obscurity for a life-time, now becomes in a few years the common property and benefit of thousands wherever the climate is adapted to its growth.

The apple is so easily raised, and so agreeable and wholesome an addition to the food of man, and of his favorite domestic animals, that it is desirable to see more generally introduced the European practice of planting waste corners, rocky steeps, and waysides with trees suited to such situations.

USES OF THE APPLE, are thus enumerated by COLE, (*American Fruit Book, p.* 82.):—"Besides the pleasure of this luxury and nutriment in rich apples, they have an excellent medicinal effect. They are gently laxative, and keep the system in a good condition. They serve as a healthy repast for children, who would be often eating something that is injurious from containing too much nutriment. (71.)

"Apples are cooked in various ways, and may at all times form one or more dishes on the table. Stewed apples are an excellent sauce. Frying in a pan after meat, is a fine preparation. They are excellent in dumplings. Sliced sweet or mild apples, in Indian or other puddings, are better than raisins, and so they are in boiled rice, and in warm Indian bread. They make fine pies and tarts. A dowdy or big pie, makes a meal for a whole family. They may be made into apple sauce, and kept a long time. Apple butter is a still finer dish. Caudled apples (boiled whole in just water enough to cover them and molasses or sugar to sweeten them,) are excellent. Suitable kinds (Winter Sweet, &c.) make fine preserves. Roasted or baked, they are good without further preparation. They make an excellent jelly.

"Baked sweet apples and milk is a luxury, excellent food, and medicine. We know a gentleman who, 10 years ago, was in a hopeless case of consumption, and by long and exclusive use of this diet, with a little bread for nutriment, and lime-water for a condiment, he was cured. Fruit diet would cure thousands suffering from inflammatory diseases, caused by high, rich, constipating food. It is also good in dyspepsia.

"Dried apples keep long, and are a convenient article of trade. Some families prepare half a ton in a year. Apple molasses is good for tarts, pies, preserves, puddings, flapjacks, &c. We have made excellent molasses by boiling down the juice of sweet apples, pressed and boiled as soon as possible after grinding. Another method is, to put the apples into boilers with just enough water to steam them,

and when soft, put them into a basket, with a little straw first, and press with a heavy weight. This molasses is said to be superior. The system may be improved.

"Apples, under proper feeding, are valuable for all kinds of stock, from birds to the largest animals. Mixed with roots, and cooked with a little meal or bran, they make a fine food for hogs. They are also good for sheep, cattle, horses, poultry, and milch cows. Good pork has been made almost wholly from apples. The Pomace (dried) is good for sheep in winter."

In preparing molasses from apples, some prefer to drain, rather than to press, the juice; a little lime water may be added, as in the manufacture of beet and cane sugar, to remove latent acidity.

Sweet Cider is a delightful beverage, if well prepared from the best sweet autumn apples. A cider-mill in Madison, New Jersey, consumes 1200 bushels per day; it operates by cutting the fruit into very thin slices, instead of bruising or grinding. The pure juice may be preserved in its sweet, wholesome, unfermented state, by taking the best running from sound late apples, adding charcoal and mustard-seed, or plaster of Paris, about a half pint to the barrel, using no water, observing strict neatness, filling sweet barrels or kegs, closing tight, (20) and setting in a cool cellar of equable temperature. (29) The strongest and purest cider is made from tough or astringent apples. "The deleterious effects of cider concentrated by *boiling*, often causing dyspepsia in its worst forms, is owing in part to the alcohol evolved during the vinous fermentation, but in a still greater degree to the malate of copper, produced by the action of the acid upon the vessels usually employed in this operation." (Dr. Jos. Henderson.)

Certain sorts of apples as of other fruits, are more digestible and better suited to weak stomachs, than others. Among the most tender and light are the Melon, Peck's Pleasant, Michael Henry, Rambo, Early Joe, Baily Sweet, Sweet Paradise, &c.

Soil, Insects, Diseases.—Varieties of the Apple, that are superior in one kind of soil or exposure, are inferior in others. These peculiarities as far as known, will be noted in the descriptions, but there is scarcely any situation to be found, not actually swampy, where the tree will not thrive. (30.)

THE BORER is an insect very injurious in some places, but scarcely known in the interior of the country. If the trees are annually washed early in summer, (14) little need be feared from the operations of this insect, which cuts through the tree at the surface of the ground.

Occasionally young plants are cut off by SAWYER WORMS. As they work within the wood, and beneath the surface, there is usually no evidence of their doings, until the tree becomes loose in the

ground, and the growth stops. A firm stake and liberal mulching should be applied at once to favor the emission of roots, (10) and the tree will generally recover.

The CANKER WORM. We are also happily exempt from this pest. It is a species of Caterpillar, very destructive in parts of New England. When numerous they strip the foliage, leaving the trees apparently scathed as with fire. The female insects crawl up the tree, and various contrivances are used to prevent their ascent.

BARK LICE. These are often seen on the branches of neglected trees, appearing like small scales, resembling a grain of flaxseed. They stunt the growth of the tree, but are quite easily destroyed by washing in June with lye. (14)

CATERPILLARS do great injury. By stripping off the leaves at a season when most wanted, (6) they render the tree feeble. The eggs of Caterpillars are clustered round a small twig, and appear like a knot an inch long, or less. They are easily seen on a mild day in spring, when the cultivator is looking over and trimming his trees, and should be at once destroyed. If any escape, the nest should be destroyed in a morning, or during wet weather, when the insects are all at home within the web. Birds, toads, and snakes, destroy myriads of insects.

APHIS. Aphides or Plant Lice are found on all kinds of fruit trees, and each kind has its peculiar insect. They are produced in the spring from eggs scattered over the young shoots and under the buds. They hatch with the bursting of the buds, and immediately begin to feed on the juices of the plant. During the summer they are viviparous, and if dry weather favors them, they increase at an incredible rate. Continued rain, or forcible syringing, will destroy them; the lady bug and chrysopas eat them, but the most effectual means is to take a large bowl of soap-suds or decoction of tobacco, or both mixed, and dip the infested ends of the branches, holding and shaking them in it. This is effectual for the nonce. But the suds should not be stronger than about a quarter pound of soft soap to one gallon water. Ants feed on the exudations of these aphides, and from their being seen busily engaged among them, are often blamed for the injury to the trees. The WOOLLY APHIS is extremely destructive to the apple tree in Europe, but less so in our summer climate. It is a reddish insect, enveloped in a white cottony down; and, avoiding the sun, it lodges in the forks or on the under side of the branches, and about the crown of the roots. It produces knobs on the limbs, and renders the whole tree sickly. English gardeners advise a paint of one gallon thick fine clay, one oz. or more soap, half a pound of sulphur. Annual washing of the bark tends to suppress these insects.

BLIGHT. The apple tree is occasionally subject to sudden blight

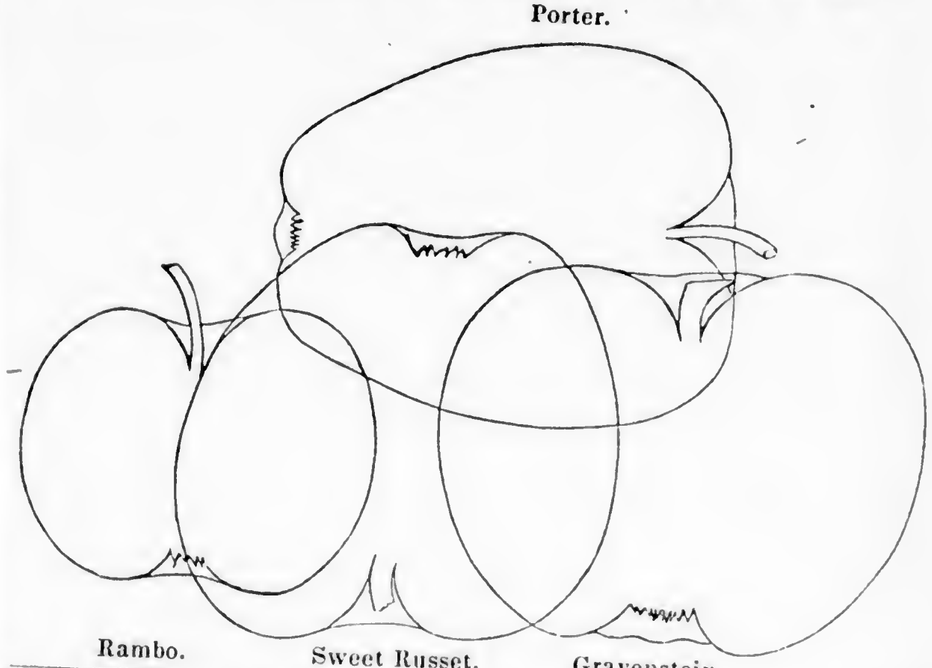
of part or whole of its top. It rarely occurs, and usually with intervals of many years. It is similar to the pear blight, but less frequent. [See Pear.]

The only insect that seriously injures the *fruit* of the apple tree, is the WORM or CODLIN MOTH, which enters at the calyx, and feeds about the core. The moths which deposite the eggs, appear about the beginning of June. When the fruit drops, the worm leaves it and seeks a shelter in the crevices of the bark, where it remains in the pupa state till the next season. A strong wash applied in May will reach them there. If old clothes are placed in the crotch of the tree, or around the trunk, the worms are said to take refuge under them, where they are easily destroyed; but it is best to have the wormy fruit gathered up, or eaten by swine as soon as it falls.

Gathering and Storing of the Fruit.—Every orchard should contain some of the best sorts for drying in September, (see descriptions,) and for making Cider and Apple-Butter in October and November. For the latter purpose, firm fleshed sweet apples of large size, and good form for paring, are preferred. Apples for winter use, should be gathered *by hand*, as late in October as may be, without incurring danger from frost.—The extremities of the branches are best reached with the aid of light portable fruit ladders, from 4 to 10 feet high. The kind of Ladder represented in the annexed figure, is easily made out of a young chesnut or maple sapling, by splitting it nearly to the top, and it is convenient for use. Either one central or two side legs may be added or removed at pleasure. A Basket may be suspended to it for tender fruits, or a Shoulder-Sack may be carefully used for apples. It is convenient to have a slide hook (see figure) to draw in and fasten the branches; also a hook to suspend the basket to a limb, and a rope to let it down.

If the Cellar can be well aired, the fruit should be removed to it at once; and is best placed on tiers of shelves made of thin cheap boards, 18 to 30 inches wide, and from 9 to 12 inches apart. In this way the apples can be readily inspected and reached, and they are not liable to bruise or rot. For large quantities, barrels are best. After the fruit has dried in a quite cool, airy, shaded place, for two or three weeks, it should be carefully placed in the barrels, and the heads fastened in so that the apples will not be loose. The best sorts thus put up are worth from $2.50 to $5.00 per barrel.—

Comparative outlines of four Autumn Apples, quarter size.



The temperature of the cellar where they are kept should be as near the freezing point as possible; they will bear a cold of 4 or 5 degrees below freezing without injury; or, if in barrels, of 10 or 12 degrees.

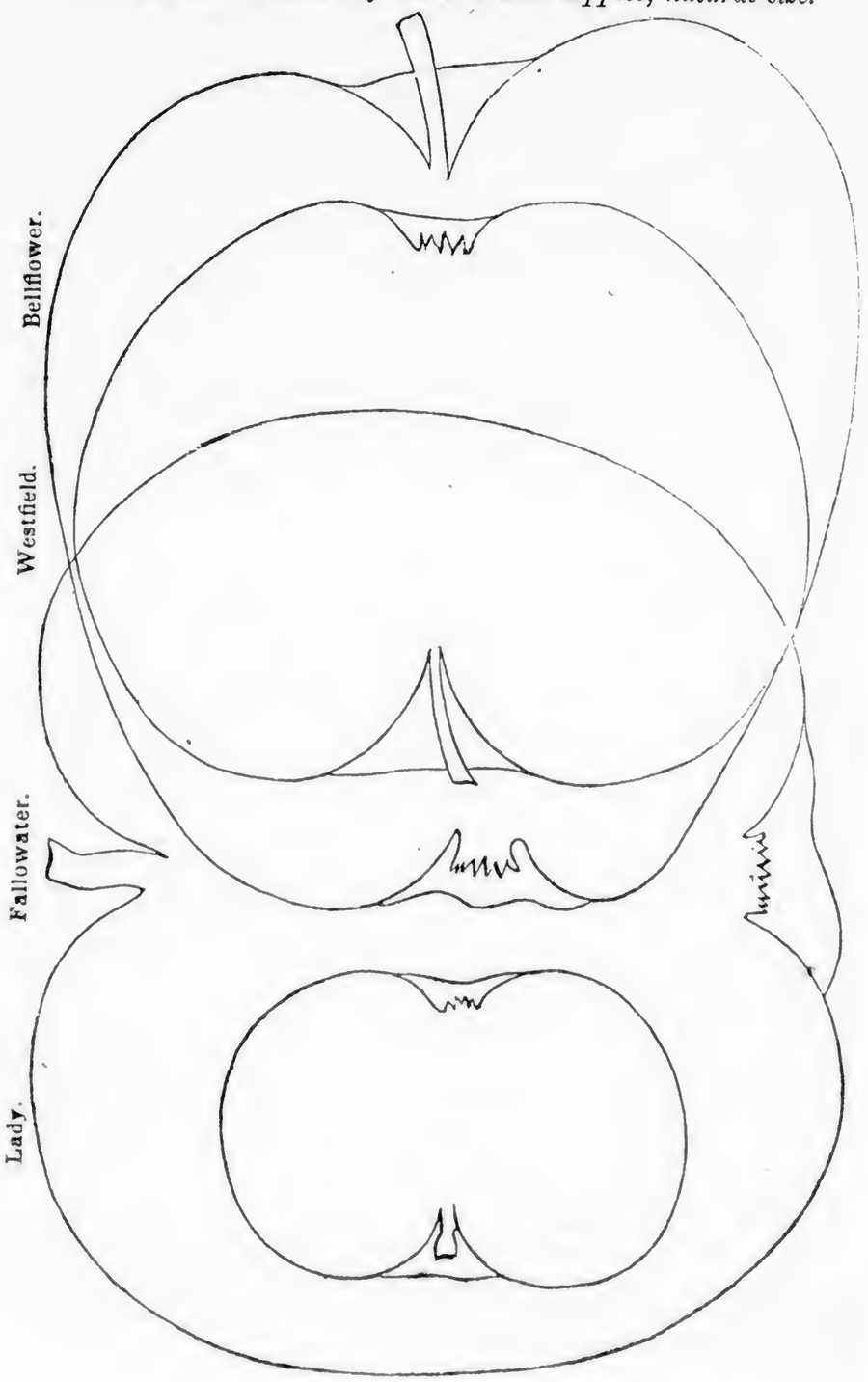
If apples are buried in the common mode, they should not come in contact with the earth; and as they soon decay and lose their flavor after the hole is opened, they should be placed in separate pits, not too large. Apples keep admirably in dry sand, or baked saw-dust, grain, plaster, &c. but it is inconvenient and troublesome.

R. L. PELL, of Ullster County, N. Y. who has 2000 trees of Newtown Pippins alone under the best of culture, and exports thousands of barrels in a season, has all the fruit picked carefully by hand and lifted from the baskets to the drying floors two at a time. They are packed in barrels and carried to London with the same care and precaution as would be used for glass, where they sell readily at 9 to 10 dollars per barrel, or at 6 dollars in New York!

There is a difference in the nature of varieties; some keep best in one mode, some in another. (30)

DWARF TREES. Some kinds are naturally of a small habit of growth, but by working on the Paradise (or natural dwarf) stock, any variety can be reduced to miniature dimensions, and rendered productive at an early age. For small grounds, such trees are decidedly to be preferred. (62)

Comparative Outlines of Four Winter Apples, natural size.



Descriptive List of Apples.

Alexander. A very large, showy, rather coarse apple; bright red stripes on orange, shaded to greenish yellow; regular form, tapering to the eye. Flesh crisp, tender, pleasant, second rate; shoots strong, rather light colored; blossoms large. Oct. to Dec.

American Summer Pearmain. A high flavored fruit, medium size, oblong, dull and bright red in fine broken streaks; flesh yellow, very tender, often bursts in falling, becomes dry; free from rot, bears well and early; shoots spotted, dark, erect, slender, short. Aug. 15 Sept.

Autumn Strawberry. One of the finest table fruits; medium, roundish, light and dark red in broken streaks; flesh whitish, very pleasant, sub-acid; shoots very thrifty, leaves sharply serrate; a good bearer. Sept. Oct.

Autumn Swaar, *or Sweet Swaar.* A superior new fall sweet; large, rich yellow, very sweet, spicy, agreeable flavor; growth vigorous, spreading.

Baily Sweet. A new superb apple; very large, regular, ovate; bright deep red, very tender and juicy; a pure mild rich sweet; shoots quite dark, rather slender. Nov. to Jan.

Baldwin. A standard sort; the best winter apple of Massachusetts; large, regular, bright red and crimson on yellowish ground, russet round the stalk; rich mild mingled flavor; great bearer, shoots very strong, upright, reddish brown. Dec. to April. (This Apple, like most others, varies in different districts, and on different stocks.)

Bellflower. (Yellow Bellflower.) Very popular in Pennsylvania; large, long ovate, ribbed, irregular; yellow with a tinge of blush; core large, hollow; flesh tender, juicy, very sprightly, rich, and aromatic. Bears regularly; best on warm loamy or light soils; should be gathered with care. Shoots numerous, yellowish; leaves narrow. Dec. to March.

Benoni. An excellent early apple; medial, roundish, deep bright red in broken stripes; flesh yellowish, tender, juicy, sub-acid, rich. Good regular bearer and grower. Aug.

Bevan. A favorite summer apple in New Jersey. Medial, flattish, broad brilliant red stripes on yellow ground. Flesh firm, crisp, white, sprightly, pleasant. Early Aug.

Blackjack. A very hardy, very productive long keeper. Rather large, flattish, dull dark red and green, spotted. Flesh very firm, dry, rather rich, breaking. Blossoms late; and therefore more certain. Shoots very upright, reddish brown. A handsome tree. Jan. to May.

Blenheim Pippin. A handsome and superior English autumn apple; very large, covered with clouds, dashes, and stripes of various shades, from claret to dark mahogany; pleasant sub-acid (not sweet) juicy and sprightly; bakes well—a good but late bearer; shoots strong, smooth, dark, inclining.

Blue Pearmain. The hardiest of apples; very large, purplish red with a bloom; flesh dry, sub-acid; a poor bearer. Nov. to Jan.

Blush. (Maiden's Blush.) A beautiful fruit, particularly valuable for drying; rather large, flattened, fair clear yellow with a handsome red blush; pleasant sub-acid; cooks well. Shoots upright, brown, spotted and flaked: an excellent and early bearer.

Borsdorf. A favorite German dessert apple, medium size; yellow, with a red cheek; flesh white, rich, juicy, fragrant, a red vein round the core. Shoots reddish, moderate; blossoms hardy. Nov. to Feb.

Boston Russet. Much cultivated as a very productive, long keeper: medial; round, flattened; rough greenish russety surface; flesh crisp or dry, flavor pretty good. Shoots light color, downy, vigorous, spreading: prefers strong moist soil. Feb. to June.

Bough. The best earliest sweet. Large; greenish yellow; flesh sweet, tender, juicy and sprightly. Last of July, Aug.

Bourassa. Valuable for great hardiness. One of the best, far North. Large; reddish russet on rich orange ground; flesh fine grained, high flavored. Shoots erect, firm, dark. Oct. March.

Butter. The best apple next succeeding Jersey Sweet for same uses, and for sweet apple butter. Large, round, regular, fair; yellow; flesh rich, sweet, firm; cooks well; a great bearer. Shoots light reddish, upright, thrifty. (Pound Sweet, Royal Sweet, Sweet Russet, Juicy Sweet, Molasses Apple, Cann Apple, &c. are used with this, for the same purposes.)

Canada Reinette. (*not Red Canada.*) Considered the finest apple in France; excellent here. Very large; flattened, ribbed, irregular; greenish yellow, tinged with brown; flesh whitish, rather firm, tender, juicy; lively sub-acid flavor: bears well; should be gathered early. Fine, dwarfed: shoots strong, rather dark. Nov. to March.

Carthouse. (Little Red Romanite.) A profuse bearer, remarkably good keeper; good cider apple; small, roundish oblong; much deep red on yellow ground; flesh yellow, firm, fresh and juicy late in spring. Tree very hardy, spreading. Feb. May.

Codlin, English. Long famous as the best culinary apple. Large, fair; clear lemon yellow with a blush; flesh white, sub-acid, free from rot, handsome when cooked and readily admits artificial

flavor. Bears young and well: shoots stout, round, reddish brown; leaves large, glossy. July to Nov.

Codlin Keswick. Adapted to limited grounds, in use through the entire summer. Large, oblong, ribbed; pale yellow; juicy, acid. One of the earliest and most profuse bearers: excellent for cooking. Shoots gray, speckled. July to Nov.

Cooper's Russeting. Makes strong rich cider, which keeps well. Small, oblong, yellow, partially russeted; flesh dry, sweet, rich; cooks well. Suited to light soils. Shoots numerous, moderate. Nov. to Spring.

Danver's Winter Sweet. One of the best winter sweets in strong soil. Medial, roundish oval; dull yellow with a blush. Flesh yellow, tender, rich; bakes well: good grower, bearer and keeper. Shoots brown, diverging.

Detroit, or Crimson Pippin, (not White Bellflower.) Large, dark glossy crimson, pleasant. Shoots dark, strong. Oct. Dec.

Domine. (*Dom-e-nee.*) "The most rapid grower, and prodigious bearer that we know." (*Downing.*) Size and form of Rambo; bright red stripes and russet spots on greenish yellow ground; flesh white, very tender, juicy; pleasant flavor. Shoots long, diverging, dark reddish brown: Leaves coarsely serrate. Dec. April.

Drap D'Or, (pron. *drah dore,*—Cloth of Gold.) Large roundish; skin fair, yellow with dark spots: flesh crisp, juicy, sub-acid, mild, and sprightly; for eating or cooking: productive. Shoots strong, smooth, dark brown; leaves doubly serrate. Aug. Oct.

Dutch Mignonne. (*Meen-yon.*) A magnificent apple from Holland. Very large, regular; orange, dotted and mottled with red stripes, and large yellow russet specks; rich, acid, aromatic: productive. Shoots strong, erect. Nov. to March.

Dyer. (Pomme Royale.) Has few equals. Large, roundish, somewhat oblong; light yellow with a brown tinge, or russet network: flesh very juicy, crisp, rich, sub-acid; excellent flavor: shoots brown, diverging, vigorous. Sept. Oct.

Early Joe. A new, beautiful fruit, pronounced the very best of eating apples, fresh from the tree. Small, flattish round; deep bright red, with white specks and a bloom: flesh white, fine grained, melting, tender, juicy, spicy. Shoots dark, short: a profuse bearer; fine dwarf. Sept.

Early Strawberry. Approved everywhere; fragrant, fine for the garden. Small, roundish; skin fair, smooth, mostly deep brilliant red; stalk long, slender; flesh white, tinged with red, nearly melting; brisk, fine flavor. Growth moderate, very erect; leaves finely crenate: good dwarf; bears well. Aug.

English Russet. Very profitable, keeps till summer. Medial, regular; greenish yellow with russet: flesh crisp, pleasant, aromatic, sub-acid. Shoots strong, upright, reddish brown, speckled. A certain bearer.

Ewalt. The handsomest grower among apples, and one of the handsomest fruits. Large, somewhat irregularly round; bright red blush on clear yellow; juicy, acid, rich; bears early. Shoots dark, smooth, very erect. Nov. Jan.

Fallowater. (*Pound,—Tulpehocken.*) A favorite native Pennsylvania apple. Large, roundish conical, greenish, with dull red or brown, and whitish raised spots; always fair: flesh greenish white, fine-grained, juicy, mild, agreeable; keeps well. Shoots very stout, black; leaves coarse: an early regular bearer. Nov. Feb.

Fall Pippin. (*not Holland P.*) Everywhere esteemed, scarcely excelled. Very large, roundish, a little flattened at the ends; smooth, greenish yellow, becomes quite yellow, with shades and clouds and scattered dots; flesh yellowish white, very tender, rich, sub-acid, aromatic, excellent; cooks well: shoots dark, spreading, very vigorous; leaves large, coarsely serrate. Oct. Dec.

Fameuse. (*Fam-moos.*) Called in Canada, where it is greatly esteemed, *Pomme de Neige*, or *Snow Apple*, from its very white flesh; in England, *Sanguineus*, or *Bloody*, from the color of its skin. Medium size, roundish; deep crimson on pale yellow: flesh perfumed, tender and delicious. Shoots very dark, rather strong; a regular bearer; good dwarf. Prefers light dry soil. Oct. Dec.

Fleiner. A favorite German apple, of beautifully smooth and waxen appearance: medium size; oblong; pale yellow, red cheek; tender and pleasant. Shoots erect, dark, purplish; great bearer. Sept. Oct.

Foxwhelp. A celebrated Herefordshire apple, makes a superior bottling cider; handsome red stripes; rich heavy juice.

Garden Royal. New. Has no superior in its season for the private garden. Small, roundish flat; dull deep red broken with stripes and specks: flesh yellowish white, exceedingly tender and fine grained, with a delicious, highly aromatic flavor. Very slow grower, great bearer. Sept.

Gate. (*Belmont, Waxen*, of Downing.) A first class apple everywhere; shape of Bellflower, but not so long; skin waxen, pale yellow, with a vermillion blush, and a few scattered dots; flesh fine, compact, very tender, rich, sub-acid, excellent. Productive, hardy; growth free, shoots light, leaves crenate. Nov. to Feb.

Gloria Mundi. (Monstrous Pippin, Baltimore.) Extremely large and showy, but blows from the tree, and is not productive. Roundish, greenish white, with a faint blush: flesh tender, white, rather coarse, cooks well; core close. Shoots dark, strong. Nov. Feb.

Golden Pippin. (Downton Pippin.) A beautiful English dessert apple; admired by those who prefer a sharp, high, vinous flavor: small, round, flattened, deep yellow, with many minute raised specks; calyx very open; flesh crisp, rich, tart. A fine cider apple, early bearer; good dwarf. Oct. Nov.

Golden Reinette. A really excellent apple, though rejected by the Pomological Congress as unworthy of cultivation! Rather small, regularly shaped, flattened at the ends; skin golden yellow, with soft red and russet: flesh yellow, crisp, rich, sugary. Oct. Feb.

Golden Russet. "The Prince of small apples." *Beecher.* Small, roundish ovate; thin russet, sprinkled on light dull yellow ground: flesh exceedingly fine grained, tender, with a mild, rich, spicy, admirable flavour: great bearer; everywhere hardy. Thomas says, "sometimes poor if not well ripened." Shoots upright, speckled, light. Nov. Mar.

Golden Sweet. Valuable for drying and for swine. Precedes Jersey Sweet; always fair, and extremely productive; rather large, regular, a little flattened, with minute dots: flesh very sweet, rich and nutritious; an upright free grower: young trees liable to overbear. Sept.

Gravenstein. The finest apple of Germany. Very hardy, and first quality everywhere in this country. Large, flattish, irregularly round; rich yellow, beautifully marked with shades of red: flesh crisp, tender, of very high rich vinous flavor. Bears young and well: shoots strong, bright purplish brown; fine dwarf. Sept.

Grayhouse. A great bearer, fine for cider. Stately growth; above medium, flattish, oblique, reddish gray coarse skin; flesh very yellow, firm, and so rich as to satiate; juice very heavy.

Green Sweeting. "One of the very best long-keeping sweet apples." (*Barry.*) Rather large, round, regular, fair, greenish with white dots; syrupy juice, good flavor; productive: shoots dark, spotted, moderate. Nov. to May.

Hagloe Crab. Superior for cider; very heavy rich juice; flesh tough, woolly; cooks well. Shoots dark, thick; large buds; a great bearer. Aug. Dec.

Harrison. The most famous cider apple of Newark; medium size, long, yellow; an immense bearer. Nov.

Harvest, Yellow. Early Harvest. The finest earliest. Medium to large; round, straw yellow; flesh white, rich acid, fine; productive: shoots dark, round, straight, moderate. July, Aug.

Haskell Sweet. *Sassafras Sweet.* Pronounced by R. Manning the best of autumn sweet apples. Large, flattish, yellowish green, with a brown cheek; flesh brownish, tender, juicy, with a rich sassafras flavor: productive; vigorous. New. Sept. Oct.

Hawley. A magnificent new apple of first quality. Very large, fair, round, flattened, deep cavities; smooth, sometimes oily; pale yellow; flesh yellowish, very tender, crisp, pleasant, slightly acid; a constant bearer: shoots thrifty, light purplish brown. Sept. Nov.

Hereford Pearmain. *Royal Pearmain.* A standard English apple; one of the finest winter dessert fruits. Medium size, oblong; shades of brownish red, dotted with gray russety specks on a dull ground: flesh greenish yellow, fine grained, aromatic, mild, agreeable; bears well, especially on light warm soils: Shoots rather dark, inclining, moderate. Nov. Feb.

Holland Pippin. A very large apple, related to and resembling the Fall Pippin in growth and color. Roundish, flattened; greenish with a dull cheek; inferior to Fall Pippin in flavor, but fine for cooking. Sept. Nov.

Hubbardson Nonsuch. Large, shaped like Bellflower, but shorter and more regular; rich yellow, mostly covered with broken stripes and dashes of rich red; cavity russeted: flesh tender, crisp, very rich, mingled sub-acid and sweet: shoots grayish spotted. Oct. Dec.

Hurlbut. A new very promising fall apple. Medial, flattish, pale yellow, mostly covered with red, with bright stripes in the sun; cavity russeted; calyx closed; flesh yellowish white, tender, remarkably crisp, juicy, mild, sprightly, aromatic: vigorous; very productive. Nov. Dec.

Jersey Sweet. Immediately follows Golden Sweet; very valuable for same purposes. Oblong, thickly striped with red on yellow ground: flesh fine grained, exceedingly sweet, juicy, tender, and sprightly,—good everywhere. Shoots stout, short jointed; leaves crenate serrate. Sept. Oct.

Jewett's Red. Beautiful, very hardy, and of first quality; from the North. Medium size; flattish round, dark red with some greenish yellow, and white dots: flesh remarkably tender, almost melting, like a fine pear; mild, delicious, aromatic. A good grower and bearer; shoots plump, purplish brown. Oct. Nov.

Jonathan. Preferred by some to Esopus Spitzenburg. Shape of Hubbardson, but smaller; regular: skin thin, smooth, covered with brilliant stripes of clear red on pale yellow ground; flesh white, tender, juicy, sprightly; fruit always fair; very productive; suitable for dwarfs and garden culture: shoots light colored, slender, spreading. Nov. to March.

Juneting. Valuable as the earliest pleasant apple. Small, flattish round, pale yellow, flesh crisp, pleasant, soon dry: productive. Shoots upright.

Ladies Sweeting. The handsomest and most admired winter sweet. Large, round, ovate, smooth, fair, nearly covered with fine dotted red, on a greenish yellow ground; clouded with faint white; flesh tender, juicy, crisp, perfumed, sprightly and delicious: a good dwarf; bears profusely: shoots slender, downy, erect; leaves whitish. Keeps well till May.

Lady. (*d'Api* pron. *dap-ee.*) An exquisite little fruit for the garden, and profitable for market. Quite small, regular, flat, smooth, glossy, red cheek on pale yellow ground; small core; very hardy; bears profusely in clusters: a charming dwarf tree of small size; shoots black, short, erect, firm; leaves small. Dec. to May.

Lowell. Remarkable for its oily skin; quality excellent: large, oblong, yellow, rich, sub-acid. Good grower and bearer. Sep. Oct.

Lyman's Large Summer. A new and handsome fruit from Conn. Very large, flattened, pale yellow, sub-acid flavor; bears well when large: the branches are without spurs, and only bear in clusters at the ends; they require shortening in. (60) Shoots thrifty, purplish red. Aug. Sept.

Manomet Sweeting. A new highly approved apple from Plymouth, Mass. Rather large, flattish, yellow ground, mostly bright unbroken red, russet at the stem; flesh whitish, tender, rich, and very sweet. Aug. (*Cole.*)

Melon. A new, beautiful, and delicious fruit, much planted. Large, roundish flattened; white, yellow, and purple or vermilion; russet round the stalk; flesh pure white, tender, almost melting, extremely juicy, spicy, refreshing; core close: shoots rather light brown, slender. Oct. to March.

Michael Henry. An excellent long keeping winter sweet. Medial, ovate, somewhat ribbed, yellowish green, very tender, juicy, and well flavored; hardy, bears young and regularly: shoots upright, rather light colored, numerous: leaves long and pointed. Dec. to March.

Minister. Strongly recommended by Mr. Manning. Large, shaped like Bellflower; bright red stripes on yellow; flesh very tender, yellowish, sub-acid, agreeable: great grower and bearer. The fruit should be thinned, and carefully picked without bruising. Deep loamy soil. Oct. Jan.

Mother. A new apple of many high qualities; perfectly hardy in Maine. Large, oblong, red, very bright in the sun, russet dots, and a little yellow; flesh yellowish, almost melting, tender, rich, "aroma resembling chick-wintergreen." (*Cole.*) Good bearer;

has few equals. Shoots thrifty, reddish brown; buds whitish. Oct. to Jan.

Newark Pippin. (French Pippin.) A good winter apple: rather large, roundish, greenish yellow, with clusters of fine black dots; flesh rich, juicy, high flavored: shoots remarkably crooked. Nov. Feb.

Newtown Pippin. Long considered 'THE AMERICAN APPLE,' par excellence. Rather large, round, a little flattened, dull greenish yellow, with sometimes a dull brownish cheek; russet rays at the stalk: flesh greenish, firm, crisp, juicy, with a very fine aroma, and high flavor: shoots slender and feeble, bark becomes rough. There are sub-varieties slightly varying: keeps long. Requires strong calcarious soil, and good culture.

Oldenburg. A large beautiful Russian apple. Roundish; yellow, with broad red stripes; tender, juicy, and sprightly: shoots dark brown, vigorous, diverging; bears young and abundantly; good dwarf. Sept.

Peck's Pleasant. A first rate apple, resembling the Newton Pippin in color and flavor, but larger and fairer. Light green, becoming yellow, with a brown blush; stalk thick and fleshy. Flesh fine grained, very tender, juicy, with a delicious aromatic flavor; a good regular bearer; requires good culture; prefers sandy or gravelly soils: growth moderate, pretty erect. Nov. to Mar.

Pennock. Large, flattened, oblique; deep dull red with white dots; flesh coarse, sub-acid, cooks well. Liable to bitter rot: has been much cultivated, being of strong growth, large and showy, and a good apple for cooking in Dec. and Jan.

Pomme Gris. (pron. Pome Gree,—*Gray Apple.*) One of the best dessert apples in Canada, where it is grown for exportation. Rather small, roundish, green russety gray; flesh breaking, fine grained, very rich and high flavored. Shoots short, dark, very firm.

Porter. The principal September apple in the Boston market; much cultivated. Large, long, smooth, rich yellow with a blush; flesh tender, with a fine acid flavor. A moderate grower; shoots reddish brown, nearly upright; leaves sharp, serrate. Productive.

Pound. See Fallowater.

Queen. (SUMMER QUEEN.) The finest large apple, next succeeding Red Astrachan. Roundish, conical, slightly ribbed; bright red stripes on yellow ground; flesh yellow, spicy, rich sub-acid or acid, varying in sub-varieties; excellent for cooking. Bears young and well, often on the ends of the twigs; a fine dwarf; adapted to light soils: shoots very firm and short jointed, gray, spotted; buds prominent; leaves finely crenate, small, woolly. Aug.

Rambo. Originated in Pennsylvania; a universal favorite through the same latitude. Medial; flattened, streaked with dull red on yellowish ground, dotted; flesh greenish white, very tender, rich sprightly, sub-acid: Adapted to light soils; shoots handsome, erect, spotted, brown; foliage opens early, has a yellowish green aspect; blossoms white. Sub-varieties vary in season, and slightly in color; the effect, apparently, of grafting on different stocks.—Oct. to Jan.

Rawle's Jannet. Never-fail. Rockremain. The best long keeper in the West. Medium; roundish oblong, color of Rambo; flesh firm, rich, mild, crisp, sub-acid. Slow grower, profuse bearer: blossoms nearly two weeks later than the usual season, hence called Never-fail. Jan. to June.

Red Astrachan. A very beautiful apple from Sweden, the best earliest culinary sort. Large; roundish, flattened; brilliant deep crimson, with a thick bloom; flesh white, crisp, acid, pleasant; becomes dry. Very hardy, vigorous, and productive: shoots stout, chesnut brown; leaves broad: a good dwarf. July, Aug.

Red Canada. *Old Nonsuch.* Preferred throughout the North. Medium; roundish, conical, regular; red, with white dots; flesh firm, rich, sub-acid, inclining to saccharine, delicious: good bearer. Shoots slender, light colored, downy; leaves wavy: fine for dwarfing. Nov. to May.

Republican Pippin. New; from near Muncy, Pa.—a fine sort for drying; has a peculiar walnut flavor. Large, round, flattened, red stripes and mottling, on greenish yellow ground; russet about the stalk; flesh tender, sub-acid, fine. Shoots very strong, bending, reddish brown; leaves coarsely cerrate; late in bearing: productive.

Rhode Island Greening. One of the most generally planted, and most profitable of all apples. Large, flattish, regular, green, becoming yellowish; a dull blush to the sun, and russet round the very close eye; flesh yellowish, crisp, somewhat granular, with a good sub-acid flavor; superior for cooking. Very great bearer; best on light dry soil: shoots very stout, inclining, dark; leaves large, coarsely serrate.

Ribstone Pippin. The best English winter apple; of high rank in Maine and Canada. Medium; roundish, greenish yellow, with clouds of purplish red and russet: flesh yellow, very firm, crisp, breaking, sharp, aromatic. Should be gathered early. Shoots rather dark, downy, bending; large hoary buds; leaves show the hoary underside. Nov. to March.

Roman Stem. A sprightly winter apple, much grown in New Jersey: whitish yellow, with a faint blush, and nebula of minute dots; stalk inserted in a fleshy protuberance; flesh tender, sub-acid and pleasant. Shoots slender, speckled: leaves small. A good bearer. Dec. April.

Ross Nonpareil. A favorite Irish winter apple; "to our taste, one of the highest flavored, and most delicious of all apples, approaching in flavor some kinds of pear." (*Downing.*) Rather small, roundish, faint red, with thin mellow russet; flesh greenish white, with a rich aromatic fennel flavor. Tree healthy, hardy, very productive. Oct. and Nov. here.

St. Lawrence. A popular market apple in Canada. Large, round, flattened; broadly streaked with red, finely pencilled into the cavities; rather acid, melting, agreeable. Hardy and productive; 50 to 60 cents per dozen in Montreal. Shoots strong, erect, nearly black. Autumn.

Seek no Further. (See Westfield.)

September. (*Pride of September.*) Native of Centre County, Pa. One of the finest apples of the season; very large, roundish, yellowish green, with red shades and stripes; valuable for eating or cooking. Shoots dark, brownish, spotted, diverging, firm.

Siberian Crab. A very hardy admired ornamental tree of small growth, bearing its bright fruit in clusters when very young. There are several varieties and colors, from fine yellow to deep red. They ripen, and are used for jelly or preserves, in August; but will hang on till late, and are very curious and showy.

Sine Qua Non. (Latin—*Indispensible.*) A first rate apple of slender growth, suited for small gardens. Medial; roundish ovate; smooth, fair, greenish yellow, with a brownish shade; flesh fine grained, delicate, very tender and fine flavored: shoots light yellowish or buff, with small buds; great bearer. Aug.

Smokehouse. A general favorite in the lower counties of Pa. resembling the Rambo. Rather large, flattened, regular; red, on yellow ground; flesh yellowish white, rich, fine: shoots strong, rather dark, bending; leaves large, coarsely serrate. Oct. Dec.

Spitzenburg Esopus. One of the very finest of American apples. Large, roundish ovate, nearly covered with deep broken copper or brick red; flesh yellow, firm, crisp, rich, sprightly, and very high flavored. Bears regularly and well with culture; fine for the garden, if dwarfed; hardy: shoots slender, erect, grayish brown, much spotted; leaves crenate. Dec. to May.

Spy. (*Northern Spy.*) A new native fruit, perhaps the best, largest and handsomest long keeping apple known. Large, roundish conical, slightly ribbed; covered on the sunny side with dark

crimson, and delicately coated with bloom; flesh yellowish, very rich, tender, mild, keeping quite fresh till July. Should have rich soil and good culture. Hardy in Maine, but the quality of the fruit doubted. Shoots very thrifty, purplish black, erect; leaves late.

Strawberry. (*Turn of the Lane.*) A handsome, fruitful, early winter apple, much grown in New Jersey. Medium; flattish, thickly striped with bright red, brisk sprightly flavor. Tree of very neat erect growth.

Styre, a famous Herefordshire cider apple, equal to Foxwhelp. Nov

Summer Bellflower. A new apple, said to surpass Williams' Favorite or Porter; same season. Resembles Yellow Bellflower. Flesh white, fine grained, tender, sub-acid, excellent: shoots vigorous, upright. A constant bearer.

Summer Rose. (*Lippincott.*) A very beautiful and valuable summer apple, admirably suited to small gardens. Rather small, roundish flat, beautifully and variedly pencilled with red on a rich warm yellow ground. Flesh very juicy, tender, sprightly, and of the finest quality for cooking. Remarkably early bearer. Growth quite slow; shoots short jointed, much spotted; buds large. Aug. Sept.

Summer Scarlet Pearmain. A showy summer fruit. Flesh stained with pink; medium size, conical, rich crimson; flesh crisp, juicy, tender and delicious; a plentiful bearer: shoots slender, reddish brown. Aug. Sept.

Summer Sweet Paradise. The finest sweet dessert apple of its season. Large, roundish, greenish yellow. Flesh tender, sweet, very agreeable. Thrifty grower and bearer. Aug. Sept.

Swaar. A noble American apple of the first class. Large, round, regular; pale yellow with brownish dots; tender, mild, aromatic, spicy, perfumed; core small. Finest on warm deep soils. Like most very high flavored late fruits, it requires good culture. Shoots black, irregular; buds large, gray. Dec. March.

Sweet Rambo. Resembling Rambo in growth, and other respects, but quite sweet. Medium size; thickly striped with bright red. Flesh crisp, tender, juicy, fine. Productive. Shoots upright, handsome reddish. Oct. Nov.

Sweet Russet. A choice kind for butter. Large, round, conical, (*fig.*) very regular; yellowish green with some russet; flesh very firm, sweet, rich. Strong light shoots. Oct. Nov.

Tolman Sweet. A very productive excellent winter sweet, widely popular; excellent for baking, or for stock; succeeding Jersey Sweet, resembles Danvers. Large, round, whitish yellow, mark-

ed with a line; flesh firm, rich, very sweet. Shoots firm, stout, diverging, reddish brown. Nov. April.

Tewksbury Winter Blush. Remarkable for preserving its flavor and juiciness till July or August. Small, rather flat, smooth, yellow with a cheek; flesh yellow, juicy, well flavored. Shoots thrifty, straight, spotted.

Twenty Ounce. One of the best *very large* apples. (44) Round, handsome, purplish red stripes on greenish yellow ground. Flesh not fine grained, sub-acid, pleasant. Shoots stout, dark, diverging. Oct. Jan.

Vandevere. (*Red Vandevere.*) Well known as one of the most profitable and useful apples when well grown. Medium; flattened, regular, yellow ground striped with red of various shades, and numerous light gray dots. Flesh yellow, crisp, tender, sprightly; superior for cooking. This sub-variety is scarcely subject to bitter rot on light or dry soils. Bears at the ends of the long, bending, reddish twigs, which should be shortened in. (58) [*Sweet Vandevere* resembles in many respects, but is quite sweet; much dotted; extremely productive.]

Wagener. A very excellent winter fruit, highly approved; introduced quite recently. Rather large, flat, deep red in the sun, passing to shades of lighter red and warm yellow, with streaks of russet; flesh yellowish, firm, fine grained, sub-acid, aromatic and excellent. Dec. to May.

Wells. (*Belle Tart.*) Rather large, conical, bright yellowish green and red, sprightly, sub-acid; fine for baking. Shoots light colored, slender; great bearer; a favorite fruit. Nov. March.

Westfield. (Seek no Further.) The best apple of Connecticut; esteemed everywhere. Large, round, regular; (*fig.*) dull red and russet dots on clouded yellow ground; fine texture, with a rich, pleasant, pearmain flavor; always fair: shoots strong, dark brown; leaves sharply serrate. Oct. to Feb.

White Bellflower. (*Ortley, Detroit, Cumberland Spice.*) A universal favorite in the valley of the Ohio. Medium or large; oblong; yellow, with a blush; flesh white, crisp, sprightly, first rate: shoots rather slender, light colored, brittle. Nov. April.

Wick. (*Court of Wyck.*) A remarkably hardy English dessert apple, succeeds here. Rather small, regular, round ovate, flattened; a warm orange cheek, and russet specks, on greenish yellow; flesh yellow, crisp, juicy, with a high, poignant flavor. Shoots slender, erect, very dark, spotted: productive; fine dwarf. Oct. Feb.

Williams' Favorite. Perhaps the handsomest largest summer apple. Large, oblong; (*fig.*) dark red, on lighter red and pale yellow; flesh yellowish, very fine, mild and excellent. Productive and profitable; a good dwarf; requires good soil and culture: shoots dark, purplish, moderate. Aug.

Wine. A very showy apple in the orchard; an early abundant bearer. Large, flattened, lively stripes of red and yellow; flesh crisp and vinous, excellent: fine for cider or cooking. Shoots rather light, inclining; leaves small. Oct. to March.

Winesap. (*Pot-pie Apple.*) A showy fruit, excellent for cider, and baking; an early good bearer. Medium size, round, deep dark red, always fair; flesh yellow, crisp, firm, rich: shoots black, irregular; suits light soils. Nov. to May.

Winter Sweet Paradise. Above medium; roundish, regular, dull green with a blush. Flesh fine grained, juicy, sprightly, excellent; great bearer; fruit fair; growth very handsome; shoots dark, upright. Dec. May. This is a suitable variety for roadside planting; as are Newtown Pippin, Peck's Pleasant, Fallowater, English Russet, Swaar, Green Sweet, Tolman, &c.—erect growers, hardy, and not attractive in color.

Yellow Harvest. [See Harvest, Yellow.] (*fig.*)

THE APRICOT.

The Apricot is peculiarly valuable from its early ripening—between the main crop of cherries and the earliest fall fruits. It is one of the most beautiful and delicious of fruits.

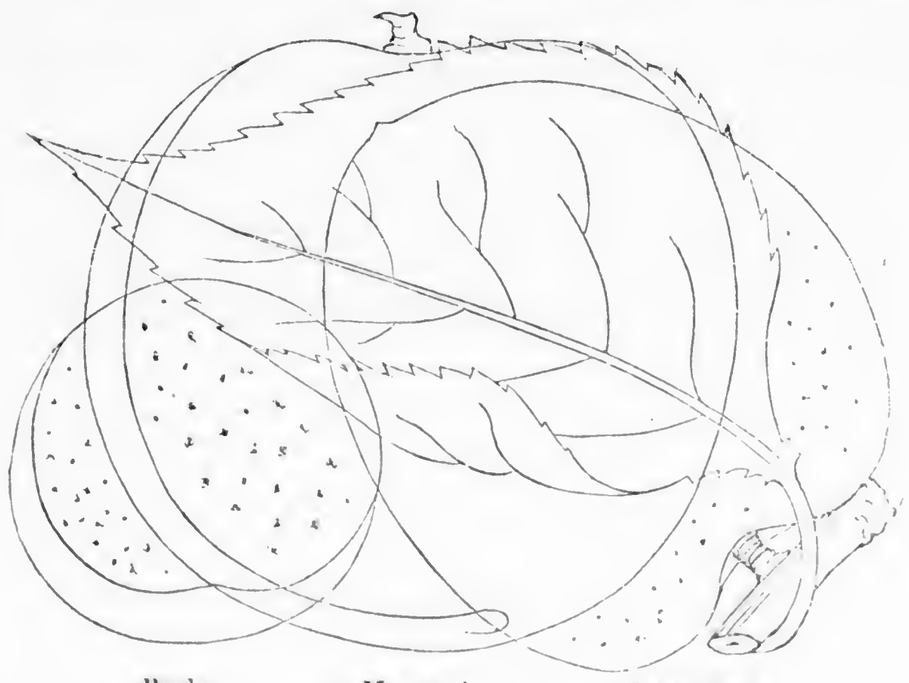
The tree is small and handsome, and is recognized by the peculiar reddish orange color of the wood; by its short plump black buds, heart-shaped glossy leaves, and large white blossoms which expand several days earlier than peaches or plums. Owing to this quick susceptibility of the sap to solar influence, the crop is precarious unless the tree is planted against a trellis or on the west side of a building, where it can be sheltered from the rays of the morning sun, and if necessary, from severe late frosts. (41)

The Apricot is a native of the East, and whole ranges of mountains in Central Asia and Central Africa, are covered with the trees.

Owing partly to their agreeable flavor, peculiar color, and especially to the early season at which they ripen, Apricots sell at a higher rate than any other hardy fruit. When ripe the fruit is considered very healthful. It is astringent and stomachic, adapted for summer use. Jellies, marmalades, &c. are made of it, and the early cullings of the fruit make the most delicious of tarts.

The Apricot, like the Plum and Nectarine, is liable to the attack of the Curculio: (see *Plum.*) It is worked on either the plum, al-

mond, or peach stock. The plum stock is considered the best, especially in strong heavy soils. In respect to soil, manure, pruning, &c. the management is similar to that of the peach and plum. If planted close to a wall or trellis, shoots that issue in a wrong direction for training should be rubbed off in the spring. (58. 60.)



Breda. Moorpark. Large Early.

Select List of Varieties.

(*Freestones marked* F.)

Breda. F. F. The best flavored, very hardy apricot. Small; beautiful dark golden yellow, with spots; flesh deep orange, sweet and rich. The kernel is sweet. July 20.

Black. A peculiar and distinct variety resembling a plum. Quite hardy. Small, round, reddish purple; flesh pale red and yellow, juicy, pleasant; kernel sweet. Shoots slender; leaves small, oval. July 20.

Early Golden. F. Valuable for great earliness, hardiness, and productiveness. Small; round-oval; pale orange; moderately juicy, sweet. (71) Shoots rather slender; longer jointed, and lighter colored than others. (60)

Large Early. F. F. The largest and handsomest of early apricots. Medium size, oblong, compressed; suture deep; pale orange, with a bright, ruddy spotted, red cheek. Flesh orange color, rich, juicy. Adapted to various soils. Foliage large.

Moorpark. F. F. The most popular and admired of Apricots. Large; roundish; orange, with a dark dotted cheek. Flesh bright orange, firm, juicy, rich, high flavored. The stone has a perforation admitting a pin to be pushed through. Requires shortening in. (60)

Orange. An excellent sort for tarts or preserves; dark orange: dry, unless picked early. Stone small, roundish, kernel sweet.

Peach. Larger than Moorpark, somewhat resembling it; the stone has the same peculiarity. Very rich, high flavor.

Roman. Very hardy; bears severe frosts. Small; pale yellow; pleasant. Dry, unless picked early. End July.

THE BERBERRY.

This fruit is worthy of a place in a collection. It is small, of a long oval or round shape, variously colored, and clustered. All the varieties are more or less acid; and are used for tarts, preserves, and ornamental pickles. The preserves are improved by the addition of sweet apple or melon rind.

The bush is durable and ornamental, and with a little care to prevent spreading, makes a pretty low, thorny hedge. It grows from 4 to 8 feet high, and thrives in poor or rich soil. To improve the fruit, manage as currants, suppressing suckers. Some varieties are evergreen, but these are valueless for fruit.

The bark of the Berberry makes a bright yellow dye. It is a common notion that grain growing near a Berberry bush is apt to rust.

THE CHERRY.

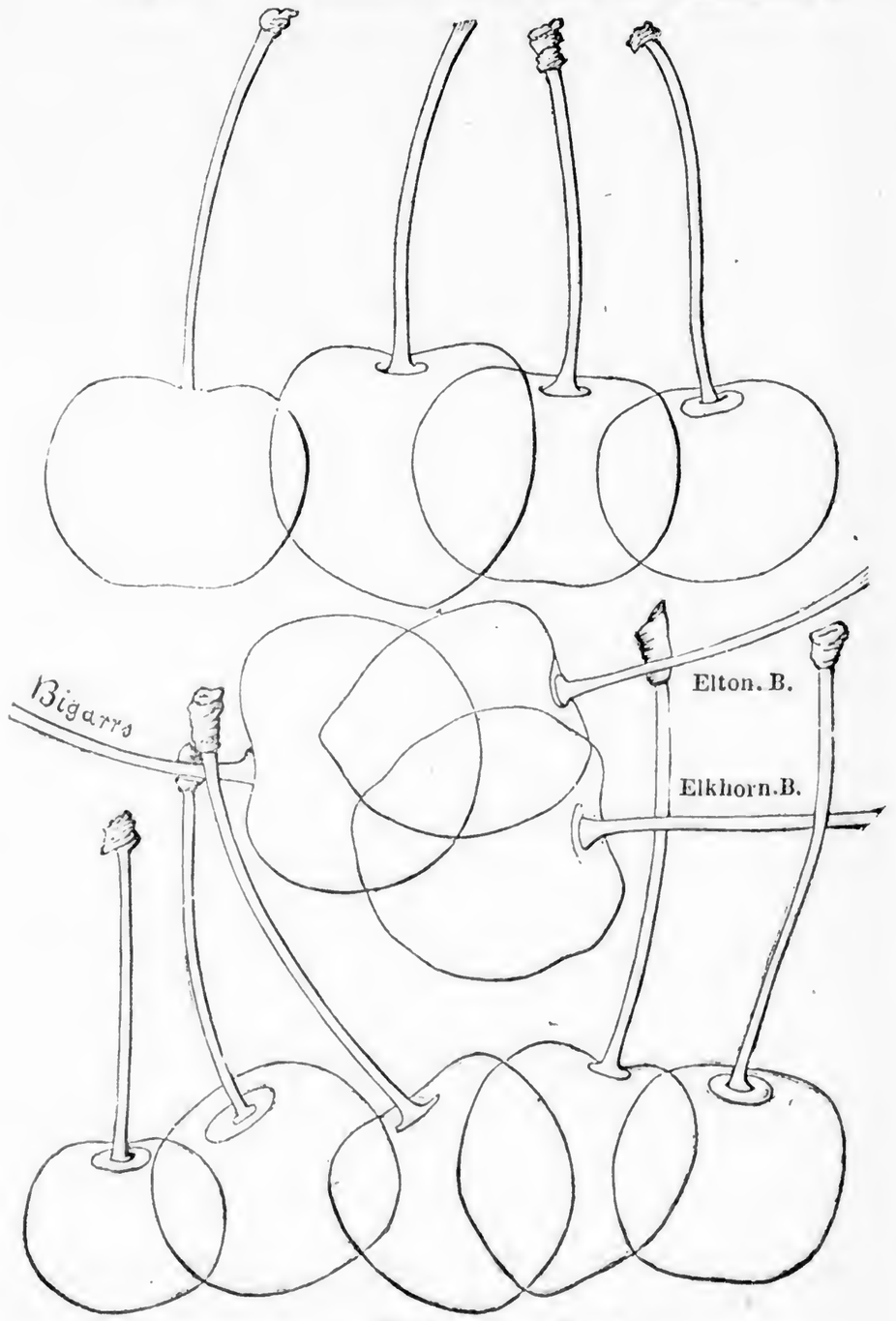
The Cherry, with its welcome cotemporary, the Strawberry, ripens in the earliest warm relaxing days of summer, when its grateful juice, and various flavor is highly refreshing and acceptable. Although the season of most of the sorts, individually, is short, no fruit exhibits greater variety; and the eye, as well as the palate, is feasted by the successive appearance of new beauties and fresh flavors, from May to September.

Several quite distinct varieties are described by early Roman writers before Christ; but many of the sorts most valued now, have been lately originated by the skill and exertion of American Culturists, among whom Professor Kirtland of Cleveland, has been eminently successful.

The larger, erect growing, leafy sorts make fine shade trees, and when planted in avenues or groves, they are as ornamental as useful. (71) The Black Tartarian, Burr's Seedling, Napoleon, Large double flowering, Weeping, &c. are among the most admired of all ornamental, deciduous, hardy trees. In Germany the roadsides are lined from one city to another, with continuous rows of cherry trees, forming avenues 50 miles long. Part of the trees are marked with a straw band or otherwise, for the use of the owner, and this mark is strictly respected. (53)

There are two classes of cultivated cherries, very obviously distinct. The first comprises the Hearts and Bigarreaus—lofty, luxuriant growers, with large, drooping, lushy foliage, and sweet fruit; the other includes the Dukes and Morellos—slow growers, with mostly low, spreading, slender branches; smaller, darker and thicker leaves; and round, usually acid fruit. The Bigarros are distinguished from the Heart Cherries by their firm flesh, and usually less erect branches. The Dukes differ from the Morellos in having mostly stouter, more erect, and less numerous branches, and sweet or sweeter fruit: both are extremely hardy, and being of small growth are suited for limited grounds. But, for the latter purpose, DWARFS, produced by working on the Mahaleb stock, are best. They are very successful, and immediately productive; and in some gardens are protected from birds by a net screen or awning reaching from fence to fence, the bushes being set 5 or 6 feet apart. The net is annually dipped in tan, to increase its durability.

Uses. The Cherry is (like other fruits) especially adapted to the season at which it appears. It is cooling and refreshing, either fresh from the tree, or prepared. It is wholesome, and being somewhat astringent and tonic, its use tends to prevent summer complaints in children or adults. It is transient, and can be truly en-



joyed by those only, who have access to the fully ripened fruit at the tree.

The WILD BLACK CHERRY is chiefly valuable for its timber, and for the medicinal qualities of the bark. The leaves of this tree contain much Prussic acid; they are injurious to cattle.

The Cherry tree, (excepting the Dukes and Morellos,) being of rapid growth, with large vessels, and a free flow of sap, does not so well withstand the vicissitudes of season as some other fruit trees. (15) In rich lands, especially Southward, the wood often bursts, or gum exudes, and the tree perishes. Dry soil and cool situations are preferable. The slaty strata of the Allegheny range are peculiarly favorable; but the varieties are differently adapted to various soils. It is said, that tan, applied as a mulching, is highly favorable to the growth of the cherry.

Pruning. (see 59) Cherry trees should not be cut or raised out of the ground after the sap begins to liquify. Prune either early in March or at midsummer; the latter is perhaps the best and safest season. They do best if raised in the fall, and the roots well earthed up in dry ground during winter, for planting in the spring.

Insects. Few insects attack the cherry tree, and it is very free from disease. (see *Morello.*) The "Cherry Slug" is scarcely known here, but is injurious in some places. Dust with fresh ashes or lime, when the dew is on.

Notwithstanding this exemption, the culture of the cherry has its share of the difficulty, which in one form or another attends the growth of every valued product of the earth. The soft Heart cherries, more than other classes, are liable to be plundered by birds and insects, and what is most vexatious, they are often taken by the former a week or two before they are fully ripe. Dwarf trees are easily protected. Others should be planted within view, or near together, and if a few more trees are planted than would be barely enough, barring contingencies, they will look well, and prove the surest guarantee for a generous supply of fruit.

Select List of Varieties.

Heart Cherries marked H; *Bigarros*—B; *Morellos*—M; *Dukes*—D.

American Amber. H. Very handsome, productive, hardy, hangs well, free from rot. Medium size; roundish; mottled; sweet, pleasant. Late. Shoots gray. July.

American Heart. B. A pink colored, very productive, vigorous sort. Rather large; half tender, juicy, sweet, excellent. Stalk slender, skin rather tough. Early June.

Baumann's May. H. Very early. Rather small; oval heart shape; deep, rich dark red; juicy, pleasant. Extremely prolific. Shoots strong, spreading, reddish brown; leaves large.

Belle de Choisy. (*bel-dush-aw-see.*) D. One of the most beautiful and delicate, suitable for small gardens; a moderate grower and bearer. Medium size; round; nearly transparent, cornelian red: flavor delicate, acidulated. Shoots upright, lighter than Mayduke.

Belle Magnifique. (*bel-man-ee-feek*) D. A superb late cherry, without a competitor at its season. Large, round; (*fig.*) rich shaded red; mild fine flavor. Shoots redder, stouter and brighter than Mayduke. Very fruitful.

Belle d'Orleans. H. A fine new early cherry. Medium size, roundish heart shaped; light amber, a little mottled; nearly transparent; tender, sweet, pleasant. Growth slender.

Bigarreau. B. Universally admired for its great size, fair beauty, and productiveness. Very large, short heart shaped, (*fig.*) clear waxen white, with beautiful red flush and slight mottling. Flesh quite firm, juicy, sweet, and very rich when fully ripe. (Cherries are often not allowed to attain their *flavor*, as they are *pleasant* before fully ripe.) Less liable to rot than white Bigarro. Shoots stout, issuing at nearly right angles, forming a round head. End of June.

Black Bigarro. (*New large.*) B. One of the very best. Large, heart shaped, regular; rich shining black; flesh sprightly and delicious. July.

Black Eagle. H. A hardy standard fruit, raised in Herefordshire, Eng., by a daughter of Mr. Knight, (23) from the Bigarro, fertilized by the Mayduke. Like most seedlings, it was at first inferior, and was retained only on the young lady's account. Rather large, (*fig.*) roundish heart shape; purple black; rich, high flavored. Shoots stout, rounding, yellowish gray. Last of June.

Black Heart. H. An old sort, of medium size; hardy, productive, tender and good. There are many spurious and inferior sorts called Black Hearts. End of June. Large growth.

Black Tartarian. H. A native of Russian Tartary: the most beautiful and saleable of heart cherries. Large, heart shaped, (*fig.*) somewhat square and wedge shaped; glossy, purplish black; very fleshy, rich, and delicious. Growth remarkably vigorous; leaves large.

Burr's Seedling. H. Excels even Black Tartarian in stately growth and luxuriance. Large, heart shaped, pointed; fine

flesh color with carmine dots and brighter red; juicy, sweet, with a lively delicious flavor; very productive; new. Shoots very strong, bright, light brown. July.

Buttner's Yellow. B. Remarkable for its peculiar color, and lateness. Rather large, flattened heart shape; creamy yellow: flesh yellowish, firm, crisp, juicy, sweet, agreeable.

Carnation. M. The best mid-season pie cherry. Large, (*fig.*) very handsome, bright marbelled red; juicy, sprightly, pleasant, sub-acid when fully ripe; hangs long without rot, or injury from birds. Growth strong and leaves large for a Morello; spreading or drooping. End of July.

China Bigarro. B. A very distinct and beautiful late sort. Medium size, oval heart shape; surface like China ware, amber red, prettily speckled. Flavor sweet and peculiar. Vigorous and productive. Shoots inclining, reddish.

Cleveland Bigarro. B. New; very large; roundish heart shape, suture deep; bright delicate red on amber yellow; juicy, sweet, very rich. A great bearer, and not liable to rot. Early.

Coe's Transparent. H. A very delicately flavored cherry, finer than Belle de Choisy. Medium, (*fig.*) pale amber and red, peculiarly blotched; tender, sweet, excellent. Vigorous, upright, productive; quite early. New, from Conn.

Double Flowering, (large.) H. One of the most beautiful and showy of large ornamental trees. Blossoms profuse and very double, like white roses, continuing for some time. Does not fruit, suitable for street planting. The *Dwarf* Double Flowering is a shrub of the Morello class; handsome, but the flowers are less perfect; later.

Downer. H. A very late cherry, the best of its season; very superior in hardiness and certainty, and of most delicious flavor when fully ripe. Rather large, roundish; light red with yellow; very tender, juicy; bitter till fully ripe. Shoots erect, smooth, handsome, grayish. July.

Downton. H. Raised by Mr. Knight from the Elton. One of the hardiest; large, roundish; light cream color, stained with red, nearly transparent. Flesh tender, adhering slightly; flavor rich and delicious. Shoots strong, spreading. Early.

Early Purple Guigne. H. (See Transp.) A highly approved new sort, as early as Baumann's May. Medium size; purple; tender, juicy, rich, sweet; bears well. Shoots quite slender, irregular; leaves rather small, on long petioles.

Early White Heart. H. River's Early is similar. Medium, heart shaped; whitish yellow, tinged with soft red. Flesh a little firm, very sweet and pleasant. Shoots long, slender. Quite early.

Elkhorn. (See Tradescant.)

Elton. B. Raised by Mr. Knight from the Bigarro and White Heart, and named from an adjacent estate. (see *Downton.*) Very large, flattened, pointed, (*fig.*) heart shaped; delicately mottled; rich, luscious, unsurpassed in flavor. Quite early. Shoots vigorous, dark brown, pendant; leaf stalks red. Flesh colored Bigarro is nearly identical.

English Morello. Said to be free from the *black knots,* by which the common Morello is so generally attacked, other varieties being exempt. The English and Plumstone Morellos have not shown any liability to the disease here as yet. Large; dark purple; juicy, sub-acid, rich, valuable. Tree small, shoots brown, slender. Trained on north walls in England to retard its ripening. End of July.

Florence. B. An Italian cherry, as fine as Bigarro, which it resembles; firmer, later; not quite so large, and more free from rot.

Gridley. B. Very firm and extremely productive; free from rot, and not plundered by birds. Medium size; black; juicy, pleasant, bitter at first. Very rapid grower. Late.

Hildesheim. (*hil-des-hime.*) B. Valuable for extreme lateness. Medium size, heart shape; yellow, marbled with red; sweet, agreeable. Shoots dark gray. German.

Indulle. M. The earliest of all cherries; dwarf; pretty glossy foliage. Very prolific. Shoots, like Choisy, but more slender.

Kentish. (Early Richmond.) M. Fine for cooking and drying, easily stoned. Very early and extremely hardy; productive, and continues long in use. Medium size (when fully ripe); round; red; very juicy, acid, becoming rich; will hang for weeks. Ends of the shoots reddish.

Kirtland's Mary. B. (Originated with Rockport, Cleveland, and other fine sorts, by Professor Kirtland, Cleveland, Ohio.) Very large, roundish heart; shades of marbled red on yellow. Flesh half tender, rich, juicy, sweet, excellent. Early.

Knight's Early Black. H. Bred from Bigarro and Mayduke. In form, surface, and quality, between Black Tartarian and Black Eagle, but earlier. Large, (*fig.*) black; high-flavored; very productive. Growth strong, inclining.

Late Duke. D. A very large late cherry, valuable at its season, especially for cooking. Large, flattened; light red. Branches more numerous, slender, and speading than Mayduke; leaves larger.

Mahaleb, called the *Perfumed Cherry*, from the odor of the tree. Foliage small, very glossy. Fruit small, bitter. Very hardy. Used as a stock for dwarfs.

Manning's Mottled. H. A very productive, beautiful, new sort. Originated by Mr. Manning, from White Oxheart. Glossy amber, finely mottled with red; semi-transparent; sweet and delicious. Shoots erect, brown, with large dots. Mid-season.

Mayduke. D. A standard variety, everywhere hardy, fruitful and excellent. Flattened heart shape, (*fig.*) red, becoming very dark; rich, sub-acid, excellent; ripens gradually. Tree rather upright for its class; shoots rather dark, short jointed. June.

Merveille du Septembre. (Wonder of September.) B. The latest cherry; new; fruit small, sweet.

Napoleon Bigarro. B. One of the handsomest and very finest of its class. Very large, (*fig.*) long heart shaped; pale, delicately veined and shaded with red; very firm, juicy, excellent. Shoots erect, vigorous, light colored. July.

Plumstone Morello. Considered the best Morello: (see *English.*) Excellent for cooking. Large, roundish; deep red; tender, juicy, rich acid. Stone pointed. Shoots slender, short, color of Mayduke. Very late.

Reine Hortense. (*rane-or-tans*) D. First rate; newly introduced from France. Large, long; (*fig.*) bright red; tender, juicy, delicious. An early and good bearer. Shoots like Mayduke, brighter.

Rockport Bigarro. New; very superior. Large, wide heart shape; beautiful red on amber: juicy, sweet, excellent. Shoots strong, upright, gray. Early.

Sparhawk's Honey. H. A hardy, vigorous, productive, lasting native sort; very valuable. Medium size, flattened, rounded, heart shape; glossy, bright amber on pale ground; very tender and delicious. Handsome growth, bright smooth shoots, large foliage. Late.

Sweet Montmorency. H. One of the latest sweet cherries, resembling a Morello in form and color; tender, excellent; last of July. Shoots very stout, dark.

Tardive d'Argental. (*tar-deev-dar-zhan-taw.*) B. A new late cherry, with a peculiar raspberry flavor. Large, long; dark, glossy; becomes tender. Shoots upright, vigorous; leaves small, light, wavy.

Tradescant. B. Remarkable for its firm solid flesh, and uneven surface. Large, (*fig.*) heart shaped; glossy black; high flavored, (bitter until fully ripe.) Valuable for its beauty, flavor, lateness, and productiveness. Shoots vigorous, erect, grayish, spotted.

Transparent Guigne. (*geen—g.* hard, the French word for a Mazzard cherry.) H. Small; skin translucent, glossy, delicately veined; bitter, becoming very sweet when fully ripe. Shoots strong, brown, bending.

Weeping Cherry. M. A singular, very hardy, ornamental tree or shrub, with small glossy bluish leaves, drooping late continuing blossoms, and small acid pale fruit; dwarfish. Strikingly singular if properly thinned out and trained. The *Large Weeping Cherry* or *Drooping Guigne* is quite vigorous, a graceful shade tree, and bears a pretty good black "guigne." (See *Weeping Peach.*)

White French Guigne. H. "A distinct and beautiful cherry, not attacked by birds as *colored* heart cherries are. Large, creamy white, tender, melting; juice colorless, sweet, with a scarcely perceptible degree of bitterness. Vigorous, and very productive. July." *Ellwanger & Barry, Catalogue.*

White Oxheart. B. The most common of the Bigarros, inferior to others; tender; liable to rot.

Wilkinson. H. Very late, succeeds Downer. Medium size, black, tender, juicy, and rich. Tree vigorous, erect, and productive.

THE CRANBERRY.

The American Cranberry is much finer than the European.—It is usually found in wet bogs or swamps, but some species appear to flourish on upland. Where the fruit does not grow spontaneously, it is well worthy of attention; the fruit being easily kept, and very desirable for its peculiarly sharp, cooling, refreshing, acid flavor; and quite a small patch,—a rod or two square,—easily attended to,—being ample for the supply of a family. It is best to plant sods or clumps of roots, and to suppress weeds during the first year, until the vines cover the ground. Choose loose peaty or sandy soil, watered in summer; and protect with evergreen spray in winter. Neither the habits of varieties, nor the best modes of management, are well understood.

THE CURRANT.

THE CURRANT, universally cultivated by the English, Germans, French and Americans, is little valued in other modern countries, and seems to have been unknown to ancient gardens. It is one of the gifts which we are disposed to prize the less, from its very abundance, yet should sadly miss if lost. Little has been done by way of improving the fruit, yet it appears equally susceptible of improvement with the gooseberry or the pear. The Red and White Dutch Currants were originated in Holland. Some new English varieties are valuable. The Cherry Currant is from Italy.

May's Victoria.

The Currant appears at a season when its acid, cooling juice, is peculiarly acceptable; it is one of the earliest and best fresh fruits for tarts and pies; and is much used, in a variety of modes. The fruit of the red and white currant, when green, is stewed, either alone or with gooseberries, cherries, or rhubarb (50); when ripe, it is very rich, agreeable and wholesome, if grown in open ground free to sun and air. The conserves, syrup, jelly and wine made from the black currant, are a favorite remedy for coughs, sore throat, and dysentery. The peculiar flavor becomes agreeable.

The Currant will bear fruit in almost any situation, but is greatly improved by culture. Keep to a single stem for the convenience of suppressing suckers; thin out the top (59) and mulch or hoe the surface. After a bush has borne for some years, either a new stem should be raised from the root, or a new row of fresh plants should take place of the old ones.

Varieties.

Black Naples. The largest of all currants; its strong odor and flavor are at first disagreeable to many. Well worth cultivating for its good culinary and medicinal properties, and distinct character. Best in cool soils; *mulch well.* Late.

Cherry Currant. An extremely large variety, recently introduced. Clusters rather short; berries twice the size of the common red; crimson; more acid. Shoots very short, erect; leaves thick, dark green, luxuriant.

Knight's Sweet Red. The mildest in flavor, rather pale.

May's Victoria. Very long clusters; showy; hangs long; valuable for its lateness and excellence. Foliage distinct, heavy and thick.

Red Dutch. Perhaps the best red currant; clusters long.

White Dutch. Excellent and beautiful, less acid than the red, clusters very long.

White Grape. Larger than White Dutch, bunches shorter, quite distinct.

Flowering Currants, are of various colors, showy and ornamental.

THE GOOSEBERRY.

THE GOOSEBERRY is indigenous in most Northern Countries. The European species have been wonderfully improved and diversified by cultivation, chiefly through the attention of cottagers and amateurs of Lancashire, England. Valuable sorts have been originated from the wild gooseberries of this country; but, as yet, our best sorts are of European origin. Many of these do not flourish here, excepting in the most Northern States and Canada; being, like the foreign grapes, subject to mildew. Deep rich soil, an open situation, thick mulching and washing with soap or brine early in the spring, the use of saline manures, and occasional renewal of the plants, usually secure a crop. Without doubt, the activity of American Horticulturists will soon develope improved native or hybrid sorts, perfectly adapted to the climate.

Uses. In England this is the cottager's fruit. It is there very healthful, and more abundant, lucrative, and sooner raised than any other fruit, excepting perhaps the strawberry. It is one of the

Houghton's Native Seedling.

Whitesmith.

Roaring Lion.

Crown Bob.

very earliest fruits for kitchen use; tarts, pies, and puddings from the green fruit, with or without rhubarb or currants, are a luxury. As a dessert fruit it is admired, (71) peculiar and varied in flavor and other properties, and continuing a long time. It is an agreeable change with the few cotemporary fruits. Different varieties are best adapted for different purposes. Some are preferred for wine, others for preserves.

The Gooseberry should be trained like the Currant, but requires more thinning; cut out all old and poor branches in November, (59) and remove useless luxuriant shoots and suckers in June.

There are hundreds of varieties; the following are some of the finest, of various colors, proved in this country.

BUNKER HILL,—Large, roundish, smooth, yellow, excellent. Growth spreading.

CLUSTER,—Quite hardy and free from mildew; profusely productive; small, brownish red, sweet, pleasant.

CROWN BOB,—Large, oblong, hairy, red; flavor first rate; branches quite spreading.

GREEN PROLIFIC,—Medium size, hairy, green; first quality; erect growth.

GREEN WALNUT,—Medium size, obovate, smooth, excellent: growth spreading.

GREEN WAVE,—Rather large, smooth, deep green; good flavor: spreading.

HEART OF OAK,—Large, oblong, smooth; first rate flavor: drooping.

HOUGHTON'S SEEDLING,—Native; rather small, oval, reddish brown; tender, sweet and pleasant. A great bearer, and very thrifty. Shoots long, slender, pendant. Wholly free from mildew.

JOLLY TAR,—Large, thick egg shaped, smooth, brownish green, first rate; spreading.

RED WARRINGTON,—One of the best. Large, roundish oblong, hairy; drooping: late. Should be allowed to ripen fully.

ROARING LION,—Very large, oblong, red, smooth, excellent; hangs long.

SWEET WATER,—A small, very hardy and productive sort, red, free growth.

WOODWARD'S WHITESMITH,—Large, white, downy, roughish, first rate; erect.

THE GRAPE.

THE VINE is universally diffused, and is everywhere held in the highest estimation.

The vines of France and Germany, are not adapted to our climate, and in consequence of their failure, and the disappointment of cultivators, a degree of prejudice has checked the culture of the fruit.

But no one who has become familiarized with the native American Grapes,—their extremely free and perfectly hardy growth, the richness, variety, and healthfulness of their fruit, the luxuriant beauty of the foliage, and the certainty and abundance of the crop, —would willingly dispense with *them*. The Catawba makes a wine superior to any foreign grape in this climate, and its yield is very much greater.

We may infer that the culture of the grape, and the abuse of its exhilarating product, were common before the Deluge, since Noah became a winegrower soon after leaving the ark. Doubtless the other fruits were known also, as there grew in Eden "every tree that is pleasant to the sight, and good for food," and it was the first happy occupation of man to dress and keep them.

The Vine, in ancient times, was a sacred plant. It was used in Sacrifices: Judges IX. 13. The Old Testament is full of allusions to its culture, fruitfulness, and importance; and a full account of the planting and vintage may be found, *passim*, from the gathering of the stones, and preparation of the ground, to the treading of the wine-press. Strict laws and regulations existed in relation to it, through all the eastern nations; and it is common now in France and Germany, to specify in leases of vineyards even how many buds shall be left for fruiting on each vine at the annual pruning. Among the Romans, the use of wine was at first confined to the service of the Gods: next it was allowed to men over thirty: afterwards its use became more general. In the early, hardy times of the republic, women were not suffered to taste wine, under pain of death; and Cato says that the custom of kinsfolk kissing women, when they met, was to detect by their breath whether they had been drinking it.

The vine, in its natural state, is extremely long lived. There are cultivated vines in existence many centuries old; and, in America, native plants are found of gigantic dimensions.

Some of the larger foreign grapes are so delicious, and their peculiar flavor is so acceptable to those who have imbibed a taste for it, that the fruit commands extreme prices; and near the cities it is found profitable to erect glass houses or frames, beneath which the vines are sheltered from the vicissitudes of temperature incident to our climate, and the fruit attains the utmost perfection without the use of artificial heat. (See *Allen on the Grape.*) These *cold houses*, as they are called, are adapted to growing Figs, Pomegranates, &c. as well as Grapes. The Black Hamburg, Chasselas, Frontignans, Black Prince, and White Muscat or Malaga, are preferred for culture under glass.

The following are foreign sorts, which usually succeed tolerably well in the open air, especially on new wood raised annually from the ground by close pruning or layering. They are more or less subject to mildew, as the wood becomes older, which is checked by training up new shoots, and by washing with ley or soap in the spring before the buds open. Dipping the shoots in soap suds, and dusting with sulphur, is recommended. The vines require to be protected in winter, (see Raspberry) and should be mulched during summer.

Black Cluster. (*Burgundy.*) Small; roundish oval, black, sweet, bunches very compact. *Miller's Burgundy* resembles this, and is equally hardy: young leaves very white, downy.

Black Prince. Finer than the preceding, but less certain. Large, oval, deep black, sugary and rich.

Early Black July. The earliest grape. Similar to Burgundy, but less rich.

White Sweet Water. Early. Pretty free from mildew, but requires protection in winter. Bunches open, with many imperfect berries. Berries round, yellowish green, crisp, watery, sweet.

THE NATIVE GRAPE.

AMERICAN GRAPES are more vigorous and coarse than the foreign kinds, and require regular winter and summer pruning, (61) to prevent their becoming crowded and choked with small unfruitful shoots. In summer pruning, avoid exposing the fruit directly to the sun; it is better screened by a leaf. Allow leaves enough beyond the fruit to sustain its growth. (18) The Catawba grape especially, requires full exposure to the sun, and all are better for the reflected heat from a wall or roof, and shelter from winds.— The trellis should be erected about 2 feet or less from the wall, using light strong posts, or iron spikes 12 to 18 inches long, (with an eye at one end through which a stout wire can be passed,) may be driven into the wall, about 4 feet apart. Strong wire can then be used instead of rails, and this will form a neat and economical frame to sustain the vine. Where there is little room, a trellis may be elevated (perpendicularly) above a roof. The best grapes are found on lofty erect trellises.

SOIL, PLANTING, &c.—VINES are raised from cuttings. They succeed best under glass. Young plants must not be shaded by weeds; regular moisture is best insured by mulching. A small stake will suffice during the first and second year, only one shoot being allowed. Afterwards adopt a certain system of annual pruning and training, and it will be easily followed. (61) Without this precaution, the vine will get into such an irregular habit, as will perplex the most practised vine dresser.

Well rooted young plants about two years old are best for setting out. Cuttings are tedious and uncertain, and older plants do not bear removal very well. Wild grapes are sometimes grafted successfully, but the operation is uncertain. Graft either before or after the bleeding season;—in March, or not till June. But the best mode is to set a well rooted plant as near the wild stock as may be; mulch and manure it, and when it has made one year's growth, *inarch* it into the other, by cutting a piece from each and tieing together, covering with wax or earth; in a year cut the old vine away close above the union. Moderate bleeding is not prejudicial. Choose well drained warm soil for the grape. The declivities of warm limestone hills are preferred now as they were in ancient times. The use of strong animal manure, blood, bones, flesh, hair, ashes, suds, lime, plaster, and well decomposed yard manure, are well repaid by this greedy feeder.

Insects, Diseases, &c.—Although Grapes are the most certain of fruits, the crop is not exempt from the dangers common to all plants for the food of man. The worst perhaps, is a sudden rotting, to which it is liable when nearly mature; most in rich soils and low situations not freely drained, and in certain conditions of the atmosphere. The use of plaster, sulphur, and bone dust, which are found in the plant in but small proportions, yet seem to be necessary condiments, mitigates the evil. On lofty trellises with free expansion of the vine, and action of the leaves, (18) there is little rot, especially if the soil is well drained.

The ROSE BUG devours the foliage. It is not known here, but is very injurious in many places. They are not so easily destroyed as aphides, which also infest the grape. (see *apple.*)

Uses.—There is no fruit more delightful, salutary, wholesome and refreshing than the grape. The vine itself is graceful, luxuriant, and inviting. 'Home is not home without it.' Serene repose and security, are beautifully typified by the figure of a man "sitting under his own vine or fig tree, with none to molest or make him afraid."

The blossoms of the grape are deliciously fragrant. Its culture is delightful. The fruit, (excepting perhaps varieties of the Fox grape,) is perfectly wholesome, and may be freely eaten by young children. It allays thirst, checks dysentery, and in diseases of the lungs, and especially of the liver, it is very salutary. Its free use, rejecting the seeds and skins, has been found remedial in bad cases of dyspepsia. Varieties of the Fox Grape are excellent when cooked, either fresh or dried, also in jelly, &c.

Where wine may be prudently used, the pure juice of the Catawba is infinitely preferable to the adulterated and poisonous liquors sold as wine. An economical and certain mode of preventing the sweet juice from passing into vinous fermentation, is a desideratum. (29) The yield per acre, at Cincinnati, is from 200 to 600 gallons. Mr. Zieber, of Reading, has made 42 gallons of pure grape wine from one Isabella vine, in a season; worth when one year old, $1.50 per gallon, or the interest of $1050. Dr. R. T. Underhill sells some thousands of baskets of grapes annually, from his 20 acres of vineyard at Croton Point, at $9.50 per 100 lbs. and is said to have realized seven thousand dollars by the sale in 1850.

Superior varieties are to be expected from the many experiments on foot in hybridization, &c. (23) Mr. Longworth of Cincinnati, has, by his efforts and success in the collection and diffusion of good varieties, and of information respecting them, erected himself a national monument 'perennius ære.'

Keeping the Fruit.—Grapes can be preserved for months in the simplest manner. Carefully gathered late in autumn, when dry, and fully ripe, rejecting imperfect berries; left on the stalk and covered with cloth or cotton, and placed in a dry cool place, they keep very well. It is usual to pack them in very thoroughly dried bran, sawdust, or cotton batting. In stone or glass jars, merely covered close, they keep well, and in the latter, their condition can be readily seen. Some think it best to dip the cut end of the bunch stalk in wax. All the native grapes improve greatly by remaining on the vine.

Varieties.

Catawba. Rather late; requires a warm wall where the seasons are short. Bunches rather large, shouldered; berries pale, coppery, or greenish red, according to exposure, with a thin lilac bloom; juicy, honied, musky, rich. Hardy, handsome foliage; vigorous. Young leaves slightly colored, thinner, more incurved and not so white as Isabella.

Clinton. Native of Western New York. Early and very hardy. Bunches small, very compact; berries rather small, black, juicy, pulpy; harsher than others. Shoots long, slender.

Diana. A new seedling from the Catawba of high character, having the great merit of being "earlier than the Isabella, and ful-

ly equal to the best Catawba." Bunches loose; berry round, pale grayish red; juicy, sweet, rich, nearly free from pulp. From Mass.

Elsinburg. Popular in New Jersey. Bunches large, loose, shouldered, berries quite small; black with blue bloom, sweet, without pulp. Leaves deeply lobed, dark green; wood slender, long jointed.

Isabella. The largest best grape for the North. Bunches large, long, shouldered; berries large, oval; dark purple, with blue bloom; tender, juicy, sweet, rich, slightly musky. Very vigorous: shoots more purpled than Catawba.

Jelly Grape. Native of Centre County, Pa. Superior for cooking, drying, preserving, &c. Resembles York Madeira in size and color. Juice deep purple, musky. Leaves thin, acutely lobed. Shoots slender, free growth.

York Madeira. From York County, Pa. Excellent when fully ripe. Extremely productive, hardy, and early. Bunches and berries resemble the Clinton. Flavor peculiar. Canes slender, short jointed.

THE MULBERRY.

The Mulberry is an agreeable and valuable summer fruit, and deserves a place in every orchard where there is no spontaneous supply. It ripens very early, just at the season of hay making. The surface beneath the tree should be mowed quite close, once or twice before the fruit begins to fall; it is then easily gathered from the short thick grass. The trees are dioecious. (23) It is therefore necessary to select female plants, which can readily be done, as the seedling trees bear young. Trees raised from cuttings or buds, of course retain the sex of the original.

Varieties.

RED MULBERRY. Native of America: long, round; pleasant.

BLACK MULBERRY. Very large, roundish, (shaped like a dewberry,) black; flavor delicious. Growth low, spreading. English.

JOHNSON MULBERRY. Described by Professor Kirtland. Fruit very large, oblong, cylindric; blackish, sub-acid, of mild and agreeable flavor. Growth strong, irregular. Leaves very large. Native.

NUTS.

WALNUTS. The European Walnut or English Walnut, though rather tender when young, soon becomes acclimated. The character and value of the fruit are well known: immense quantities are annually imported and sold by confectioners.

HICKORY NUTS. Some varieties are superior. A tree on the premises of Mr. Newlin of Fishkill Landing, N. Y. bears nuts, about one third of which are deeply stained with red throughout; all are nearly three times the size of ordinary hickory nuts, and of fine flavor.

FILBERTS. The best English Filberts are found to be quite fruitful here, and well deserve culture. They are sometimes long in coming into bearing. The *Frizzled Filbert*, *Cosford*, *Red*, and *White*, are approved varieties. A cool situation is best, to retard the very early appearance of the blossom. (24)

CHESNUTS. The American Chesnut is equal to any in flavor; it is produced abundantly in the poorest soils. The *Spanish Chesnut* is very large, and is admired; its growth is free and handsome. The *Chinquapin* is quite dwarfish, bearing abundance of miniature chesnuts of good flavor. It is a curiosity, and where not found in a wild state, merits introduction.

THE PEACH AND NECTARINE.

THE PEACH is a native of Persia, the sunny home of the Apricot and the Melon. It finds in the United States a climate congenial to its nature; and while European cultivators build walls to shelter and encourage the tree, and practice the most assiduous culture to produce a semblance of the fruit, it grows here almost spontaneously and reaches a degree of perfection, altogether unknown to those who live under more cloudy skies.

American Peaches are as much admired as American apples. Yet, owing chiefly to neglect, induced by their ready growth, there is great degeneracy in the stock of peach trees. Common seedling peaches, vary in flavor from agreeable sweetness, to insipidity, or insupportable acrid bitterness.

Perfect, juicy, well-sunned specimens of the finest varieties, fresh plucked and fully ripe, are unexcelled by any fruit of any clime, in intensity of luxurious luscious flavor, and they are as grateful and wholesome to the system as they are agreeable to the palate. A celebrated physician near Boston, used to say to his chronic patients, "Wait till peach time, and then almost live on peaches, and

you will be sure to recover." "They are Nature's provision for the season and should be freely used, especially by invalids, instead of using so much solid food." *Dr. Fowler.*

Uses.—The various uses and preparations of the fruit, either raw, dried, or stewed; in pies, puddings, or milk; spiced, pickled, or preserved; baked or fried;—are well known.

The Peach, like the Cherry and other fruits, will succeed in dry soils, too poor to produce remunerating crops of grain; but in strong soils, and dry elevated situations, they bear perhaps richer fruit, and are longer lived. On the elevated limestone ridges,—the combs of the upheaved and synclinal strata,—in the vallies East of the Allegheny, it is quite common to find Peach trees in bleak exposed situations 30 or 40 years old, and still healthy and fruitful. The peach crop is somewhat precarious everywhere, (41) not more so in the Northern States than further south, and the fruit, of suitable varieties, attains equal excellence.

The blossom buds of the Peach tree are oftener destroyed by the fall or winter, than by spring frosts. If the trees blossom, there is usually more or less fruit. A few days of warm weather during the season of rest, start the excitable sap, and the moist and swollen buds are killed by sudden severe frost. (41) The condition of the buds is readily examined by cutting them through with a knife. If the central part is black, it is destroyed; if the whole of the folds of the buds are discolored and flabby, the injury is recent.

TREES.—The Peach Tree is rapid in its growth, soon reaching maturity, and should not be more than two years old when planted and from 3 to 5 feet high, with branches issuing within about 2 feet of the surface. (60. 62. *fig.*) If older or larger when transplanted, it may live, but never recovers from the violence of the operation; the fruit is small and spare, and both it and the tree are prone to decay. (44. 56.) Similar injurious effects result from the lopping of large branches, or their breaking by storms, snow, or weight of fruit. This is all avoided by adopting the method of pruning (60) now generally followed, since first recommended to the orchardists of this country by Mr. Downing in his admirable and standard work on fruits. (chap. XXII.) The wide spread improvement attributable to that part alone of his truly national work is incalculable.

Dwarfing.—Some kinds, and chiefly the serrate-leaved glandless varieties, are naturally diminutive; others are dwarfed by working on slender plum stocks, as the Mirabelle. Proper pruning and close planting, tend to dwarfen all, and render them more productive and hardier. The roots of peach trees ramify profusely through every part of the surface soil, which if shallow, cannot be ploughed without irreparably injuring the roots of the trees. (37) But grass and weeds must be suppressed, or the trees will scarcely grow at all. (35.)

DISEASES, INSECTS, &c.—The PEACH WORM. This is a white grub, half an inch to an inch or more in length, generally prevalent, and well known. It is injurious and sometimes destructive, principally to young trees. Larger trees are often supposed to be destroyed by it, when, in fact, they are victims to the yellows. The worm feeds on the soft bark of the tree, at the surface of the ground: it lives in the tree nearly a year, if not searched out; but its presence is indicated by the exudation of gum, especially obvious in wet weather, mixed with seeming minute chips. When mature, it encases itself in a sack or cocoon of gum and chips, and in due time issues thence, a steel-blue fly or wasp, to lay eggs for another generation. The eggs are laid mostly in July and August. Soon after this time, a little fish oil, tar, or pickle, may be brushed round the collar of the root, and will either destroy or deter the young insects; but it is best to examine the trees in the fall and spring: the insects are easily probed out. A heap of ashes, lime, or tobacco stalks; or these mixed with salt, hen-manure, soot, &c. applied round the collar in spring and levelled in October, is of double service; preventing the insect, and efficacious as manure.

But the worm is a trivial enemy compared with the YELLOWS. This is the approbrium of Peach Culture. It is contagious, and so fatal, that a tree once attacked, never recovers. Millions of trees, and thousands of entire orchards, have been destroyed; and the owners unacquainted with the nature of the disease, often pursue a course that tends rather to accelerate than to mitigate the evil. The *marks* of the disease, are a yellow, sickly, starved condition of the leaves; the emission of numbers of short, puny, wiry shoots from the limbs; a ripening, or rather insipid softening of the fruit, some weeks earlier than its season. The fruit and leaves are often stained or spotted with purplish red. Sometimes one branch is attacked a year sooner than the others. The disease is communicated by intermingling of the roots, or of the pollen dust from the blossoms; a bud from a diseased tree inserted in a healthy one, infallibly communicates the disease, even if the bud does not grow. Indeed the mere cutting with a knife into a sickly tree, and directly into a sound tree, seems sufficient to communicate the virus.—Stones from trees having the yellows are often planted to obtain *early ripening sorts!* Such plants seldom live to bear more than one small crop.

By way of remedy, apply good culture and regular pruning; select sound trees of moderate growth (44) from a healthy location, avoiding irresponsible retailers of trees, also trees grown in warmer districts. Plant on fresh soil, and above all, if any tree should exhibit symptoms of the yellows, have it promptly eradicated.

Peach trees sometimes exhibit a sickly appearance, which does

not result from the yellows. If not occasioned by the worm, it probably indicates fault in the soil; (40) apply alkaline manures freely; iron, in any form, is serviceable. A large peach tree in the garden of David Stewart, Esq. of Colerain, becoming sickly, was treated by that gentleman, who is an accomplished Culturist, with iron in the form of tenpenny nails driven into the stem near the surface. It recovered, and has since maintained a healthy rich green foliage.

Curled Leaf,—Is a crimped swollen appearance of the first leaves, produced, as some suppose, by frost affecting the bud (41); others attribute it wholly to minute aphides which are found (not always) on the under side of the leaf. The injury is but temporary; the affected leaves soon fall and are succeeded by healthy ones; but the growth is lessened, and the tree disfigured. These aphides may be destroyed as others. (see *Apple.*)

The **Mildew**, common on the ends of glandless varieties, checks growth, but is otherwise not very injurious; it may be lessoned or removed by an early use of soap suds. The following has been recommended: 2 lbs. fresh lime to 6 gals. water; stand 16 or 18 hours; take off the lime water, add 4 gals. soap suds. Syringe the tree once or twice. *E. Dagge, in Genesee Farmer.*

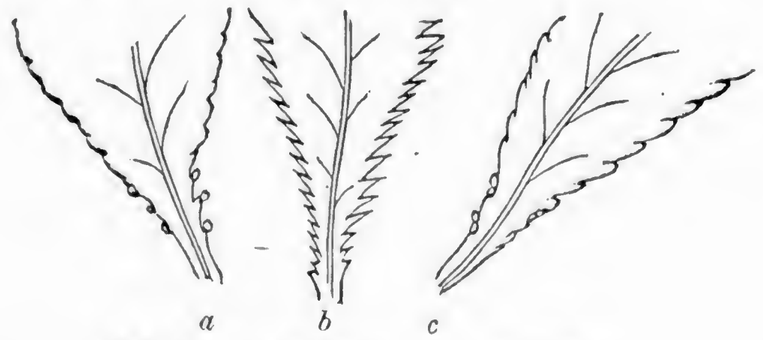
Varieties.

The chief marks of distinction, are the two-fold character of the blossom, and the triple division of the leaves and fruit.

THE BLOSSOMS are either LARGE, and pink or whitish; or SMALL, less expanded and brownish.

THE FRUIT is either smooth, (**Nectarine**,) or downy (**Peach**); free from the stone, or cling; yellow fleshed, or white fleshed.

THE LEAVES are either without glands, and deeply serrated (*b*); with glands, globose (*a*), or larger and reniform (*c*). These distinctions are permanent and invariable.



a globose glands. *b* serrate, glandless. *c* reniform glands.

The white-fleshed peaches have usually the most piquant and vinous flavor, but are most prone to decay. The yellow-fleshed are more luscious and richer in appearance. Clings (C.) are less suitable for drying, but they carry well, keep best, and are preferred for spicing or preserving.

Bellegarde. A French peach; the most popular in the markets of Paris; one of the finest here. Large, round; rich red, with purple streaks, on yellowish green. Flesh white, rather firm, juicy, fine. Fl. small; gl. globose. Sept.

Bergen's Yellow. "Perhaps the finest of all yellow-fleshed peaches." Very large, often nine inches round; broad, depressed; orange, dark red in the sun. Flesh yellow, very rich and luscious; growth luxuriant. Fl. small; gl. reniform. Sept.

Blood Cling. C. Valuable for pickling and preserving. Large, roundish oval; very downy; dark, clouded, purplish red: juice claret color. Shoots purple. Fl. small; gl. reniform. Oct.

Brevoort. A good peach for the garden, a regular bearer. Rather large, dull white, with a bright red cheek. Flesh firm, stained red, rich sweet, high-flavored. Fl. small; gl. renif. Sept.

Cole's Early Red. One of the most productive, very early sorts. Medium size; red, clouded and mottled with darker shades. Flesh pale, juicy, rich and delicious: tree thrifty. Fl. small; gl. globose. Aug.

Cooledge's Favorite. A very popular, productive, beautiful sort, native of Mass. Large, roundish, one-sided; white, delicately crimsoned. Flesh white, very melting, juicy, rich; tree vigorous. Fl. small, gl. globose. Aug.

Columbia. Peculiar in the purple color of the young wood, and the singularly dingy marbled red of the skin. Flesh yellow, often stained, fine texture, excellent. Shoots inclining. Fl. small; gl. reniform. Sept.

Crawford's Early. The most showy, hardy, and profitable of early yellow-fleshed peaches; a vigorous tree, and early regular bearer. Very large, roundish, flattish, pointed; deep yellow with a fine red cheek. Flesh yellow, very juicy, good flavor. Fl. small, gl. globose. Aug.

Crawford's Late. Equal in merit to the last, and much resembling it; 3 or 4 weeks later. Flesh yellow; flavor rich and vinous. Fl. small, gl. globose.

Double Flowering Peach, has very large showy blossoms, and is quite ornamental. It bears sparingly. Fl. large, gl. reniform.

Druid Hill. "We know no other late Freestone that equals this in flavor and size." *Downing.* Growth unusually stout; an

abundant bearer. Very large, roundish with a swollen point, greenish white, clouded with red. Flesh purple at the stone, flavor rich, vinous. Fl. small, gl. reniform.

Early Tillotson. This and the Early York are the finest, *very* earliest peaches. Rather large, round, thickly and handsomely dotted with red; juicy, rich, high-flavored. Very hardy, but slow in growth, and when young, liable to mildew. (*See above.*) Suitable for the garden. Leaves deeply serrate, glandless. Fl. small.

Early York. As early as Tillotson, equal in merit; freer growth; more vinous flavor. Very productive. Fl. large; leaves serrate, glandless.

George the Fourth. A native peach with a foreign name. Of the very highest character for flavor and hardiness. Large, round, one-sided; yellowish white, finely dotted with red, passing into a rich red cheek. Flesh melting, very juicy, rich, luscious: growth spreading. Fl. small; gl. globose.

Grosse Mignonne. (Groce-meen-yon.) Preferred and cultivated everywhere, under scores of different names. Large, roundish, depressed; pale yellow, mottled with red; purplish cheek. Flesh yellowish white, juicy, very rich high vinous flavor. Fl. large; gl. globose.

Haine's Early Red. (*Large Early York, Honest John, N. Y. Rareripe.*) Medium size, roundish, pale white with fine red dots and flush. Flesh white, fine, juicy, very sprightly and excellent. Thrifty, hardy, and productive. Fl. small; gl. globose.

Heath Cling. C. Long famous as the type of excellence. Requires a long season, and thinning of the fruit, to mature properly. Very large, oblong, large point; downy, creamy white with a red tinge. Flesh greenish white, extremely juicy, sweet, and high flavored; keeps for weeks. Tree hardy and thrifty. Fl. small; gl. reniform.

Jaques Rareripe. Fully equal to and resembling Crawford's Late, but earlier. Very large; flesh yellow. Shoots diverging. Fl. small; gl. globose.

La Grange. Valuable for preserving on account of its lateness, color and excellence. Large, oblong, greenish white, sometimes tinged. Flesh pale, juicy, very delicious. Fl. small; gl. reniform. Oct

Large White Cling. C. One of the most valuable of its class. A remarkably hardy, thrifty tree; and the fruit is superior for eating or preserving: it keeps some weeks after being gathered. Large, round, white, slightly dotted. Flesh very tender, juicy, luscious. Fl. small; gl. globose.

Late Admirable. (*Teton de Venus.*) "I have never been disappointed of a crop of large delicious peaches from this tree, even when all others have failed." *R. Manning, Salem.* Very large, roundish, suture deep, point acute; pale, with a lively cheek. Flesh greenish white, juicy, delicate, vinous. Fl. large. Leaves glandless, serrate.

Late Red Rareripe. "One of the very finest of all peaches." *Downing.* Growth handsome; fruit peculiarly gray. Large, roundish oval, point sunken; pale grayish yellow, thickly marbled, dull red cheek. Flesh white, juicy, very rich. Fl. small; gl. globose.

Lemon Cling. (*Pine Apple Cling.*) C. from Carolina. Very handsome, hardy, and productive. Large, lemon-shaped, point swollen; yellow, with a dark cheek. Flesh yellow, rich, sprightly. Fl. small; gl. reniform. Sept.

Malta. Especially hardy and durable; superior. Rather large, roundish flattened; pale green with irregular dull purple. Flesh greenish, very juicy, rich, sub-acid, vinous. Fl. large; leaves serrate, glandless.

Morris White. (Cole's White.) Much cultivated under various names. The most popular white peach of its season. Rather large, oval, delicately white, with a slight tint. Flesh entirely white, firm, juicy, sweet, rich. Best southward. Fl. small; gl. reniform.

NECTARINES are varieties of peach with smooth skin, usually firmer flesh, and rather peculiar piquant flavor. The fruit, being smooth and tender, is eminently attractive to the Curculio, (see *Plum.*) The following six are the most approved Nectarines.

Boston Nectarine. Bright yellow, with a very deep red cheek, and mottling of red. Flesh yellow, sweet, pleasant. Fl. small; gl. globose. Sept. 1st.

Downton. Roundish oval; pale green, with deep red cheek. Flesh pale green, melting, rich. Fl. small; gl. reniform. Last of Aug.

Early Violet. Roundish; yellowish green, dark red cheek, and brownish dots. Flesh whitish, red at the stone, melting, high flavored, and aromatic. Fl. small; gl. reniform. Last of Aug.

Elruge. Color, form and size of the Violet, but paler at the stone. Fl. small; gl. reniform. Sept. 1st.

Hunt's Tawny. Hardy, very early, and productive. Roundish ovate, with a prominent point; pale orange, dark red cheek, and russety specks. Fl. small. Leaves serrate, glandless. Mid. Aug.

Stanwick. Recently obtained from Persia, not yet received in this country. Said to have a sweet edible kernel, perfectly free from prussic acid (found in all others.) "Pale with a violet tinge.

Exceedingly juicy, rich and sugary." At the first sale in London, in 1850, twenty four plants brought eight hundred dollars.

Nivette. (*ne-vett*, snowy.) Same season and character as Morris White, superior for the North. Large, roundish, light yellowish green with a faint cheek. Flesh pale, pink at the stone, juicy, melting, and very rich. Growth upright. Fl. small; gl. globose.

Noblesse. An English peach of the highest value here. Large; roundish, pale green with delicate red. Flesh pale, melting, with a very high luscious flavor. Fl. large; leaves serrate, glandless.

Oldmixon Cling. C. One of the richest of all peaches. Large, roundish oval, rather one-sided; yellowish white, dotted and tinged with red. Flesh pale, very melting and juicy. Fl. small, gl. globose.

Oldmixon Free. Very hardy, productive, and profitable. Large, roundish, one-sided, suture slight; pale white marbled with red, passing to deep red. Flesh white, deep red at the stone, tender, melting, sugary and vinous. Fl. small; gl. globose.

President. A white, very downy peach of high character, succeeds Morris White, a good bearer. Stone very rough. Fl. small; gl. globose.

Red Cheek Melocoton. (*mel-o-co-toon. Spanish for "Peach."*) One of the hardiest and most uniformly productive. Large, roundish, with a point, yellow, with a red cheek. Flesh yellow, red at the stone; melting, sub-acid, rich, vinous. Fl. small; gl. globose. Sep. 1.

Scott's Nonpareil. A new, very large and fine yellow fleshed peach, resembling Crawford's Late, but sweeter; much grown for market. Fl. small; gl. globose.

Snow. A very remarkable variety; young shoots greenish white, fruit thoroughly white, admired for preserving; hardy and productive. Flavor sweet, rich and sprightly. Fl. white, small; gl. reniform.

Walter's Early. Very superior and valuable in the North. Follows Early York. Large, roundish; white with a rich red cheek. Flesh whitish, melting, juicy, sweet. Fl. small; gl. globose.

Ward's Late Free. Selected by the Reybolds as one of the very best and most profitable late sorts. Large, roundish; yellowish white, with a red cheek. Flesh white, excellent. Fl. small; gl. globose.

White Imperial. Earlier than Morris White, and better for the North; very hardy and vigorous. Flesh white, very juicy, delicate, excellent. Quite early. Fl. small; gl. globose.

Weeping Peach. A striking and singular variety, with pendant branches; very curious if well trained. It should have a tall, erect stem, and the drooping head should be evenly disposed.

THE PEAR.

IT is a question with many, whether, in the balance of merit and good properties, the Apple or the Pear is to be preferred. The fruit of the pear is rather more transient, and fewer sorts are adapted to culinary uses than of the apple—winter varieties are comparatively less numerous, and require more exact management, but it far excels in delicacy of texture, and variety of richly mingled, unsurpassably delicious flavors. The Pear Tree, while young, is much more difficult to raise, and some varieties are more liable to blight; but, once established, it is the hardiest, most productive and profitable of fruit trees. (71) In former times the pear was widely cultivated; now, the apple is preferred economically, but the pear is universally the favorite as a luxury.

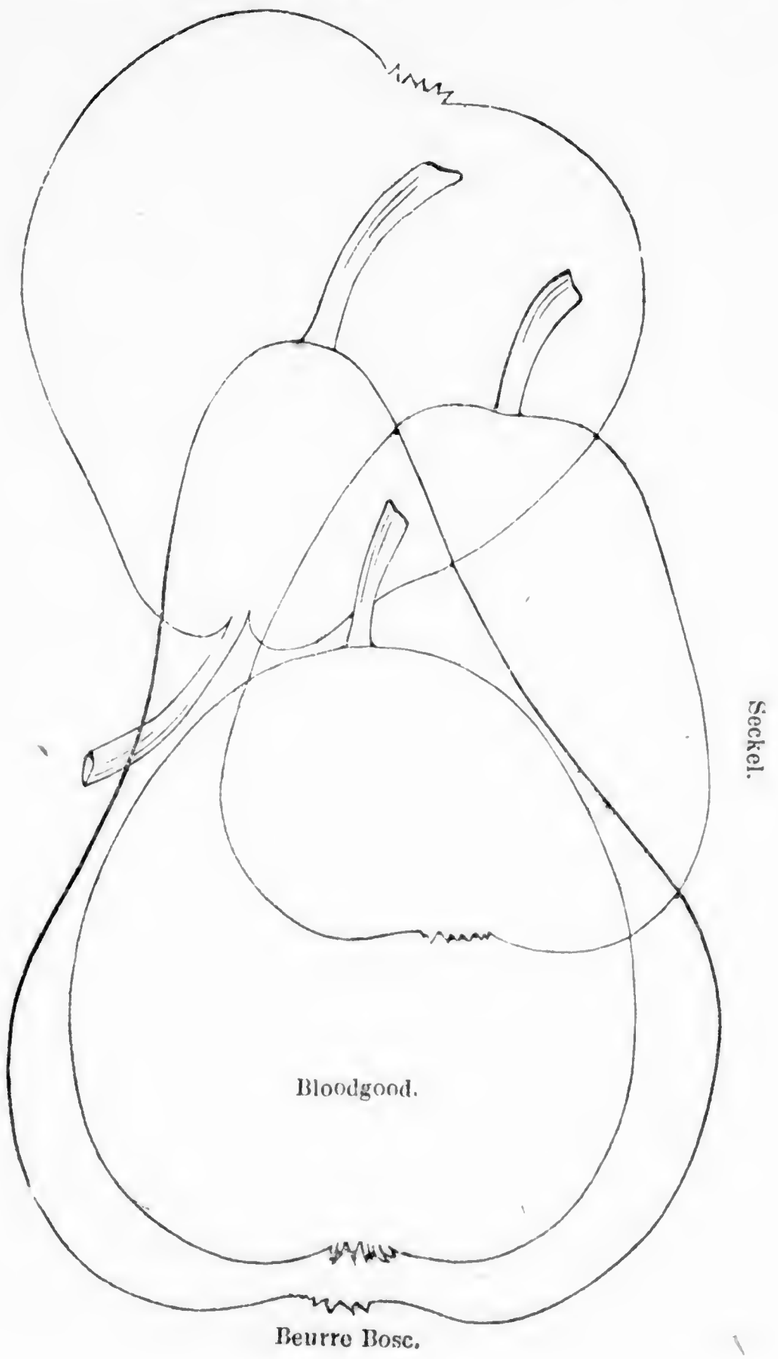
All lovers of fine pears owe a tribute of thanks to the amateur cultivators who have, within the last century, originated and introduced the wealth of delicious varieties, with which we can now regale ourselves or our friends through ten months of the year.—Foremost among these benefactors of their race, is the name of VAN MONS, of Belgium, who devoted himself to a range of tedious experiments, requiring a lifetime for their accomplishment; and persevered through vexatious and overwhelming difficulties and interferences, to see, in very old age, his efforts grandly successful, and to receive the merited applause of nations. A host of honored names have zealously seconded his efforts, and are better worthy of garlands and praise than are the vaunted triumphs of destructionists. While "grass grows or water runs," their names will be upon the tongues of men.

Many entertain an injurious prejudice, (founded on the habits of some wilding trees,) that pears are half a life time coming into bearing. On the contrary, most of the fine sorts bear quite as early as the apple; a few, as Dix and Harvard, are late; but some apples have a similar habit. (58. 12.) The pear is more variable than the apple; sorts that are generally excellent, do not in some seasons, attain their flavor, but remain insipid. Such cases, as far as known, are noted in the descriptions of varieties. Some kinds are delicately nice in their preference for certain soils.

The wild pear is one of the most austere of all fruits, so astringent and choky as almost to defy any effort to swallow it. The epicurean and luxurious Romans had pears, but the best of them were only "good if well boiled or baked." *Pliny.*

The tree is native of the Eastern continent, and in its natural state is the hardiest and longest-lived of fruit trees. Trees now existing, are known to be near 400 years old. A tree planted by Gov. Endicott at Danvers, Mass. in 1628, is still flourishing. An-

Comparative outlines of four varieties of Pear, natural size.



other, brought from Holland by Gov. Stuyvesant, and planted in 1647, is now living in New York City. A tree in Holme Lacy, Herefordshire, England, covers half an acre, the pendant branches taking root like a banyan: it has more than once yielded 30 barrels of perry in a season. A tree near Vincennes, Illinois, ten feet in girth, produced 184 bushels of pears at one crop.—Pear wood is very compact and fine grained, and is much used by turners.

Uses.—Many kinds are superior for baking, stewing, preserving, marmalade, &c. for these purposes fine dessert pears are not suitable. Perry is made from coarse autumn pears, as cider from apples, and commands a large price. "Pears, judiciously used, are a most excellent and healthful article of diet. Iron is a most important element in the blood; this, and the delicious flavor of pears, are Nature's guarantee for their usefulness." *Fowler.*

Pears sell at high prices, reaching instances of 25 cents each, $1 or $2 per dozen, and $10 to $15 per barrel; five dollars is a common price, and $2 is the lowest for ordinary fruit, and this where pears are most plentiful and best known. (71)

Soil, Manure, &c.—Pears may be grown in any soil excepting cold, stagnant, wet; or very dry, sandy ground. (48) The trees do not bear transplanting well when over three years growth, unless prepared by root pruning. (56) Dwarf trees on quince roots are very patient of removal; trees in bloom have been transplanted and have matured their fruit. Besides the usual manures, (39) pear trees require a little iron and phosphate of lime (bone dust). Apply manure early in the fall.

The **Blight.**—There is scarcely any other serious affection of the pear tree than this, which is sufficiently formidable. It is attributed by some to minute insects, and by others, to a disease in the sap, a sort of vegetable apoplexy. There is more than one form of blight, and it may be produced in both the ways mentioned; the latter is the most common. The appearance, or rather result, is a sudden withering, blackening and death of the leaves and shoots or branches, or part of them, during summer. It is no better understood than the potatoe disease. If trees grow luxuriantly, late in the fall, after a rest, they generally suffer. (17)

There is but one course to pursue when the tree is affected. The whole diseased part and a foot or two more of the branch, (down to sound untainted wood,) should be immediately cut off and put into the fire. If this is promptly done, the disease is mostly checked. If delayed, it often spreads downward and destroys the tree.

To prevent blight, choose trees with roots disposed horizontally; (dwarfs are rarely attacked.) (48) and plant in dry, healthy, well drained soil. Some varieties, of moderate regular growth, seldom blight in any situation. Prune no large limbs off. Allow branches

from the ground upwards, to shade the stem and sustain regular growth; (12) and keep the ground mulched. (40) If the autumnal growth of a young tree is likely to be over-luxuriant, loosen it, or cut off the top roots with a spade in August. (55) This will also induce bearing. (25) Cracking or rusting of the fruit seems to proceed from the want of some specific manure, as phosphate of lime, or iron. (22)

Dwarfs. The pear is dwarfed by working on suitable kinds of the quince stock. Some kinds are improved by dwarfing, a few do not succeed; the chief of these are Bosc, Dix, Gansell's, Flemish Beauty, Dunmore, Marie Louise, Washington, Ranz, Monarch, and Urbaniste: but these may be grown by double working, grafting a free grower first.

Dwarfs are now much more extensively planted than standards. They bear very early, are comparatively exempt from blight, will flourish on soils too cold or wet for the pear-stock, bear transplanting remarkably well at any age, are conveniently managed and protected, and with proper care will continue in prolific bearing from 15 to 30 years. The pyramid form is preferred (37.*fig.*) (62). Trees on pear or thorn roots can be grown in this mode with root pruning as over-luxuriance may indicate a necessity for it. (See above.)

Gathering and Ripening. Summer pears are generally much better for being picked early; they attain more juiciness and flavor, and last longer, and are less apt to rot at the core. If left on the tree till fully mellow, many sorts become dry and tasteless. Winter pears require peculiar treatment. They should be left on the tree as long as practicable without injury from frosts, then picked carefully in dry weather, and stored in a cool dark room or cellar, like apples. As they are wanted, or as the season arrives for their maturity, they are brought into a warm room, and placed in a close box, wrapped or covered. Here they will become mellow and rich in the course of a week or two.

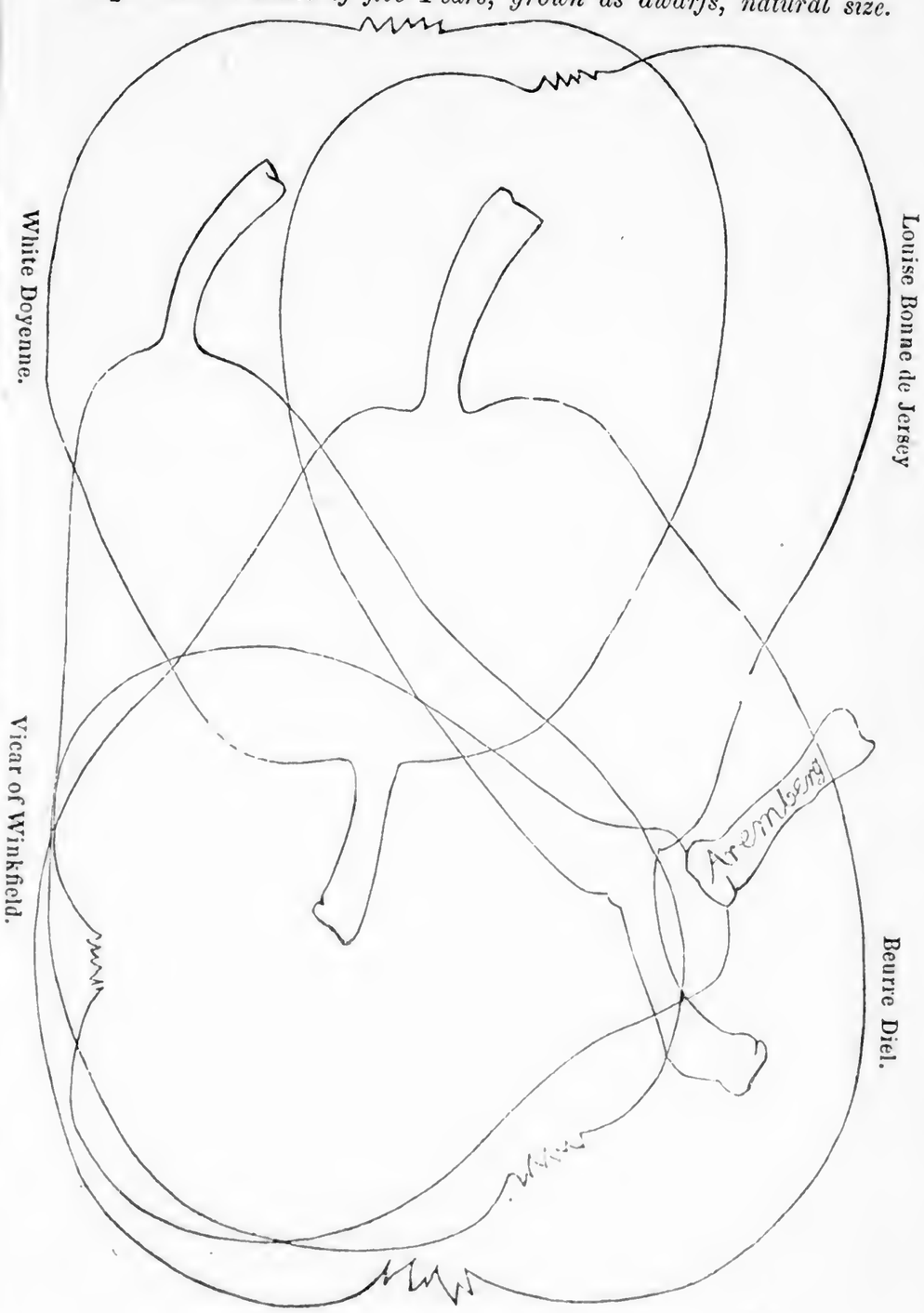
The longest keepers require all the ripening they can have on the tree, and, if grown on pyramids, they may easily be covered sufficiently to exclude the first frosts, and left on the trees during the fine weather usual in the month of November.

Varieties.

Young trees of different sorts are distinguishable chiefly by a difference in the color and growth of the annual shoots, but these vary somewhat in different soils and expositions.

Amire Joannet. (*am-e-ray zho-an-nay.* St. John's Pear.) (The foreign names of many European pears have been often needlessly

Comparative outlines of five Pears, grown as dwarfs, natural size.



retained. There is perhaps a certain attractiveness in their outre appearance! An approximate pronunciation is given, with an equivalent English name.) This pleasant fruit opens the pear season. It is the best, very earliest, and is a profuse bearer. Small, tapering into the swollen stalk; light green, becoming yellow, with faint blush and red dots; sugary, juicy, but soon becomes mealy. Shoots strong, purplish spotted.

Annanas. (*an-an-ah, Engl.* Pine Apple.) Two or three fine pears bear this name. It is not yet adjudicated.

Andrews. A popular native pear, and very hardy tree, free from blight. Rather large; thick pear-shaped; dull yellowish green, with a red cheek, and few dots: very juicy, melting; excellent flavor. Good on sandy loam. Shoots moderate, diverging, dull olive. Sept. Oct.

Bartlett. Generally considered the "best of summer pears." Large, irregular, knobby; yellow, with a slight blush. Very fine grained, juicy, sweet, perfumed, vinous; ripens well if picked quite early; bears very young. Shoots erect, brownish yellow; leaves narrow, folded, bright; buds flat.

Belle of Brussels. A very showy pear, preceding Bartlett, sometimes fully as rich, sometimes worthless. Large, regular, light yellow with a soft cheek; flesh juicy, sweet, melting. Very strong grower.

Belle Lucrative. (FONDANTE D'AUTOMNE, OR AUTUMN MELTING, of *Downing*, who ranks it with the Seckel in flavor.) Medium size, obovate, full, regular; stalk stout, oblique; yellowish green with some russet. Variable; when perfect, unexcelled. Very hardy, free from blight; good bearer; makes a fine pyramid. Shoots rather slender, yellowish gray. Sept. Oct.

Bergamotte Cadette (or *Beauchamps*, pron. *bee-chum.*) Medium, round oval; yellowish green with tinge of red and russet: melting, buttery, juicy, sweet, rich. Productive; fine pyramid. Shoots strong, erect, yellowish brown. Sept. Oct.

Bergamot, Ganzel's. A standard English pear. Rather large, roundish, flattened; greenish yellow, with rough russet and some red; coarse grained, but peculiarly rich and high flavored. Best in warm, rich soil. Late in bearing. Shoots spreading, dark gray; leaves mealy. Sept. Oct.

Bergamot, Hampden's. Handsome fruit; hardy tree. Large, roundish; green, becoming yellow with spots: flesh breaking, half buttery if house-ripened. Shoots stout, light brownish red. Sept.

Beurre Bosc. (*bur-ray.* Bosc's BUTTER.) Uniformly fine; pear shaped, with a long tapering neck, (*fig.*) dark yellow,

with much dark russet; flesh white, juicy, buttery, delicious. Bears early, and moderately. Shoots thrifty, upright, dark olive. Sept. Oct.

Beurre d'Amalis. (*dah-mah-lee.*) New; hardy, a fine grower; fruit always fair, flavor second rate. Large, irregular; short neck; dull green with numerous russet spots. Flesh coarse, melting, buttery, excellent. A variety is curiously striped "panache" (*pan-ah-shay.*) Shoots strong, inclining, dark olive brown. Sept.

Beurre d'Anjou. (*dahn-zhoo.*) Above medium; obovate, regular; greenish yellow with russet clouds and a dull cheek. Flesh fine grained, buttery, melting, sprightly, vinous, rich. Shoots brownish olive, moderate. Oct. Nov.

Beurre d'Aremberg. "One of the first of winter dessert pears in our climate." *Downing.* Large; thick pear form, (*fig.*) skin thick, yellow with russet; stalk thick, oblique. Flesh melting, buttery, rich, high vinous flavor. Easily kept in close boxes. Very productive: fine dwarfed. Shoots bright, yellowish brown, speckled. Dec.

Beurre Diel. A noble pear, invariably fine on dwarf trees. Large, thick; dull yellow with dots and marblings of russet; flesh a little coarse grained, sugary, rich, delicious. Requires warm seasons and soils on the pear root. First fruit inferior. Keeps some time, if gathered early. Ripen with warmth. Shoots long, thrifty, grayish red; leaves broad.

Beurre Gris d'Hiver Nouveau. (*gree-de-vair noo-vo.* New Winter Gray Beurre.) "Richer than d'Aremberg." *Thomas.* Worthy of its name. Medium size, roundish obovate; greenish, with much russet; abundantly juicy, resembles Oswego Beurre in flavor. Bears young. Shoots slender, reddish chestnut. Nov. Jan.

Beurre Ranz. Considered in England the very best late pear: fine in the West and South. Medium size, thick pear shape; dark green, with roughish russet; melting, gritty, full of sweet rich juice. Mr. Downing advises care in ripening. Shoots rather slender, brownish yellow or greenish olive. March to May.

Bezi de la Mott. (*bay-zeed-lam-ot.*) Has been greatly praised. Variable, sometimes worthless. Medium, roundish; "very fine grained, buttery, juicy, with a sweet delicate perfume. Every garden should have a specimen." *Downing.* Shoots vigorous, grayish olive, much speckled, straggling. Hardy; early, profuse bearer. Oct. Nov.

Bezi de Montigny. (*bay-zee-dum-on-tee-nee.*) A very fair pleasant fruit. Medium, smooth, regularly obovate; yellowish green with numerous dots; melting, sweet, musky. Vigorous, productive; makes a fine pyramid. Oct.

Black Worcester. (*Iron Pear.*) One of the best culinary sorts; very profitable. Large, thick; dark rough russet on green. Flesh hard, coarse; stews and bakes well. Shoots strong, straggling, dark; buds sharp, prominent. Nov. Feb.

Blood Pear. (Sanguine.) A small early pleasant pear, remarkable only for the blood-stained appearance of its flesh. Growth slender.

Bloodgood. An American fruit. The highest flavored and best early pear known. Medium size; roundish, (*fig.*) top-shaped, full; yellow with russet network; buttery, melting, sugary, aromatic. Best on dry light soils and house-ripened. Shoots reddish, short jointed.

Brandywine. New; native; "juicier and richer than the Bartlett." Medium size; short, tapering into the fleshy stalk: yellowish green, with much russet; melting, refreshing, excellent. Not liable to rot at the core; a regular good bearer; fine pyramid. Shoots thrifty, pale olive; leaves dark green. Aug. Sept.

Brown Beurre. A fine old standard sort, requires a warm aspect and good soil; best on quince root. Large, tapering; yellowish green, covered with thin russet; flavor very high, vinous, peculiar. Shoots bright reddish chestnut, short jointed, bending; leaves folded. Sept.

Buffum. A fine, vigorous and fruitful orchard pear. Medium size, thick, larger on one side; brownish green, and broad bright red; buttery, sweet, good. Variable. Shoots strong, erect, bright reddish brown.

Butter. (White Doyenne. *dwoy-an-nay.*) A universal favorite. Rather large, with a broad square or truncated outline, (*fig.*) pale yellow with a slight blush. Flesh fine grained, and very buttery, melting and rich. Fine pyramidal growth. Shoots rather slender, firm, yellowish brown; leaves folded. Sept. and if gathered early, keeps till Dec. Fails near the sea; very superior in Western New York. A striped variety (panache) otherwise resembles.

Calebasse. A curious fruit, named from its shape; productive and pleasant. Rather large, long neck, knobby; yellow, sugary, crisp. Shoots reddish. Sept.

Canandaigua. (*Catharine.*) A new, melting, fine flavored pear, similar to Bartlett: upright, vigorous, very productive. Shoots stout, brownish yellow. Sept.

Capiaumont. "Makes a beautiful, productive pyramid." *Barry.* Medium size, turbinate, yellow and cinnamon red; flesh white, buttery, melting, sweet and rich. Shoots clear reddish brown, with white spots; leaves narrow, folded, serrate. Oct.

Catillac. (Equal to Pound and Worcester.) Very large, broad turbinate, yellow with a brown cheek; flesh hard, excellent quality and handsome color when baked. Hardy. Shoots vigorous, reddish yellow. Nov. Feb.

Chaumontelle. An old variety, a magnificent fruit. Requires good warm soil, and careful ripening. Large, irregular, fullest at the middle. Rich brownish red, and russet dots, on a roughish yellow ground; buttery, melting, sugary, with a peculiar perfume. Shoots long, dark brownish purple. Nov. to Feb. Best on quince.

Columbia. A native winter pear, remarkably vigorous, productive and hardy. Large, broad, regular; golden yellow; flesh melting, buttery, rich and aromatic. Shoots strong, erect, brownish yellow. Nov. to Jan. Apt to blow from the tree.

Comte de Lamy. A high flavored Belgian pear of great merit. Fine pyramid. Medium, roundish; yellow with a blush; melting, fine flavored. Shoots slender, upright, dark. Oct.

Cushing. An extremely productive, hardy variety, native of Massachusetts. Rather large, short, full; light greenish yellow with a dull cheek: firm, melting, buttery, sprightly, perfumed. Suits various soils. Growth slow, spreading, slender; dull olive.

Dearborn's Seedling. A very hardy excellent pear, the best between Bloodgood and Bartlett. Small, top-shaped, yellow; melting, aromatic, lively, delicious flavor. Bears young, scarcely liable to blight. Shoots erect, strong, dark brown. Aug.

Dix. A valuable native pear and very hardy tree, does not bear early. Quite large, long; deep yellow, dotted with russet. Flesh juicy, rich, sweet, sprightly; one of the finest of pears in strong soils. Shoots yellow, slender. Oct. Nov.

Doyenne Boussock. (*dwoy-an-nay boos-ok.*) Nearly resembles Gray Doyenne; first quality. Shoots strong, bright yellowish red.

Doyenne d' Ete. (*day-tay.*) Summer Doyenne. One of the finest and most beautiful of very early pears, resembles a small Butter Pear; shining yellow, with a bright warm cheek; flavor excellent. A very early, good bearer; a dwarf produced 42 fine pears the second year. Shoots slender, reddish brown.

Doyenne, Gray. Large, thick, nearly resembling White Doyenne in form; yellow, with russet, and a ruddy cheek; buttery, juicy, melting. Shoots erect, reddish purple. Oct. Nov.

Doyenne Robin. A very large fine new pear; obovate, short, yellow, juicy, buttery, perfumed. Shoots divergent, grayish, speckled with brown; buds large, dark brown; leaves narrow, with red petioles.

Duchesse d'Angouleme. (*dush-ess dann-goo-lame.*) The largest dessert pear. Best on quince; first fruit usually inferior.

Broad pear-shaped, knobby; dull greenish yellow, streaked and spotted with russet; flesh rather coarse, melting, buttery, juicy. Not suitable for a standard. Shoots strong, upright, yellowish or reddish brown; buds projecting.

Duchesse d'Orleans. A fine new large French pear, with the flavor of Gansel's Bergamot. Long pear-shape; golden yellow, russeted; buttery, melting, aromatic, delicious. Shoots yellowish green. Oct.

Dunmore. One of Mr. Knight's new pears. Very large, oblong, roundish, russety green; stalk fleshy. Flesh buttery, very melting, rich, good. Strong growth; bears well: hardy. Sept.

Easter Beurre. One of the best long keeping pears; a profuse bearer on the quince; requires a long season to mature well. Large, thick, yellowish green with russet. When fully ripened, buttery, fine grained, melting, juicy, richly flavored. Shoots thrifty, upright, reddish yellow; leaves narrow, folded.

Flemish Beauty. A superb fruit, greatly admired and very valuable. Large, obovate, pale yellow; surface rough, covered with marblings of reddish russet: flesh yellowish, granular, melting, very saccharine, slightly musky. Must be gathered quite early. Always fair: prolific. Shoots strong, erect, dark purplish brown.

Flemish Bon Chretien. (Good Christian.) An excellent cooking pear through winter. Medium size, obovate, pale green, with a brown cheek. Flesh crisp, juicy, and stews very tender. Nov. to March.

Fondante d'Automne, (fone-dawnt do-ton.) see Belle Lucrative.

Forelle. (*Trout Pear.*) An exquisitely handsome, and very distinct German pear. Medium size, rather long: lemon yellow, with a rich vermillion cheek, finely speckled. Flesh rich, fine. Shoots dark, resembling apple wood in aspect; buds whitish, sharp; leaves small.

Fulton. A very hardy productive native pear. Rather small, flattish round; russet, shaded from gray to reddish; sprightly, pleasant, always fair. Shoots reddish brown. Oct. Nov.

Glout Morceau. (gloo mor-so. *Tasty bit.*) One of the very finest winter pears, best on quince. Large, oval pear-shape; greenish yellow, with brown dots and patches. Quite sweet, melting, fine grained, buttery, rich. Shoots strong, bending, dark olive, distinct. Dec.

Golden Beurre of Bilboa. A very superior dwarf: immediately follows Bartlett. Large, rather short, full; fine golden yellow, with shades of russet; flesh fine grained, buttery, rich: very

fair, and regularly productive. Shoots strong, erect, light yellowish brown.

Harvard. Suitable for extensive orchard culture: remarkably hardy, vigorous, productive, and handsome; late coming into bearing. Rather large, russet yellow with a brownish cheek; excellent flavor. Rots at the core, if matured on the tree. Sept.

Heathcot. Hardy, thrifty, and profitable. Large medium; obovate, regular; pale greenish yellow with a little russet. Flesh buttery, melting, perfumed; with a rich vinous flavor. Shoots upright, reddish brown. Sept.

Henry Fourth. Downing says this pear should be comprised in every good collection. Rather small; roundish; pale greenish yellow, with small gray specks. Flesh unusually juicy and melting, with a rich delicately perfumed flavor. Should be house-ripened. Always bears well: hardy. Shoots stout, bending, yellowish brown. Sept.

Jargonelle. A favorite old variety, nearly superceded by newer varieties of the same season; fine for pyramids: should be gathered early, or it rots at the core. Rather large, long, greenish, with a brownish red cheek. Flesh juicy, rather coarse, sprightly, refreshing. Aug.

Josephine de Melines. (zho-sef-een dum-al-een.) A new Flemish pear, pronounced in Europe the best winter variety. Medium size, greenish, melting, rich. Fine for pyramids. Shoots moderate, grayish olive; leaves small. Spring.

Julienne. A handsome pear, very productive, and very early bearer; sometimes excellent in quality, often indifferent. Good in warm dry soil. Shoots strong, thrifty, yellow.

Kinsessing. A fine new native pear from Philadelphia. Rather large, thick, ends flattened, green. Flesh rich, buttery, delicately flavored. Very handsome pyramidal growth. Shoots olive gray speckled, upright; buds sharp, prominent. Aug.

Lawrence. A new sort, which promises to become a standard fruit. Pretty large; cavities at each end; pale green, with patches of brown russet. Flesh juicy, very rich and sugary. Shoots moderate, light, reddish. Nov. March.

Lewis. A very hardy native, a good orchard fruit; requires manure and culture to support its great productiveness. Small, roundish, rough; green surface with russet specks. Flesh coarse grained, melting, juicy, spicy. Shoots vigorous, drooping, dark olive. Nov. to Feb.

Lodge. Native near Philadelphia; superior. Medium size, small pointed neck; rather irregular; greenish russety brown. Flesh very juicy, melting, rich, vinous.

Long Green. (Verte Longue—Mouthwater.) A hardy, prolific, profitable pear. Large, long, green, very juicy, sweet, excellent. Shoots vigorous, olive, spotted. Oct.

Louise Bonne de Jersey. One of the finest for dwarf pyramids. Large, long, (*fig.*) fair; glossy brownish red cheek on pale green. Flavor excellent. Very hardy and productive. Shoots thrifty, upright, brownish purple. Sept. Oct.

McLaughlin. A fine, new, hardy winter pear, from Maine. Medium size, rough, red and brownish yellow. Flesh gritty at the core, melting, juicy, rich, pleasant. Shoots very moderate, dark reddish brown. Dec. Jan.

Madeleine. (mad-lane.) The earliest best pear: always fair; an early and constant bearer. Rather small, greenish yellow with a brownish blush: melting, juicy, sweet and delicate. Should be picked early. One of the most liable to blight in moist rich soil. Fine dwarf. Shoots erect, strong, purplish brown; buds rounded, dark. July.—[A variety (Citron des Carmes Panache,) is striped: it is not so vigorous, and less liable to blight.]

Marie Louise. A very delicious pear when perfect: Variable, hardy, productive. Large, pear-shaped, one sided; yellow with russet markings. Flesh white, very buttery, rich, sugary, vinous. Shoots olive gray, remarkably crooked and pendant; leaves narrow; petioles very long, slender. Oct. Nov.

Moyamensing. A fine new buttery pear, from Philad. Large, roundish, lemon yellow. Hardy. Shoots reddish gray; buds sharp; leaves shed early. Aug.

Muscadine. Native. Introduced and highly preferred by Messrs. Downing. "Remarkable for its high musky aroma, and if house-ripened, not surpassed by any pear of its time." A great bearer. Rather small, roundish, pale green with brownish dots. Shoots stout, dark brown, spotted. Sept.

Muscat Robert. A little earlier and larger than the Madeleine. Pleasant; bears well. Shoots yellowish brown.

Napoleon. A hardy, thrifty tree; early and abundantly productive. Large; shaded green; very juicy, sweet, melting, agreeable. Best in warm soils, and ripened in a warm room: fine pyramid. Shoots erect, bright olive; leaves broad. Sept. Oct.

Osband's Summer. A new, very superior, handsome and productive summer pear from Western N. Y. Small; shape of Butter pear; clear yellow with green dots and a red cheek; half melting, sweet, mild; excellent, but fugacious flavor. Shoots stout, olive. August.

Oswego Beurre. Also native of N. Y.; "a most valuable pear." *Barry.* Medium size; thick, flattish; stem in a cavity: yellowish green, with thin russet mottling. Flesh tender, juicy, rich, vinous. Very hardy and productive; a fine pyramid. Shoots vigorous, bright brownish yellow. Oct. Dec.

Ott. New; native of Pennsylvania, resembling the Seckel, but much earlier. Admired.

Paradise d'Automne. (*par-ad-ees-do-ton.*) A pear of the first quality. Large, pear-shaped, uneven; orange yellow with russet; fine grained, sprightly, high flavored. Shoots very strong, straggling, yellowish. Oct.

Passe Colmar. Perhaps the finest sweet winter pear. Needs root pruning and thinning to check its luxuriance of shoots and over-fruitfulness, or the fruit is inferior. Rather large, short; yellow with russet: when well ripened, buttery, aromatic, first rate. Shoots bright, brownish yellow. Dec.

Pound. (*Uvedales St. Germain?*) An extremely profitable, hardy winter cooking pear; easily kept; very large, specimens weighing two pounds and even more. Solid hard flesh; red, when cooked, and excellent. Shoots stout, firm, upright, dark.

Pratt. A new variety, of the highest quality, from R. I. Rather large; greenish yellow, thickly dotted. Flesh very rich, saccharine, aromatic. Shoots moderate, brownish olive; leaves wavy. Sept.

Prince's St. Germain. One of the most hardy, productive, and useful of winter pears, easily kept and ripened. Medium size, ovate, flattened; green, with russet, and a dull red cheek; melting, juicy, vinous, fine. Shoots dark reddish brown; buds large, sharp. Dec. Jan.

Rostiezer. (*ros-teed-zer.*) Fully first rate in its season; a very strong grower, and great bearer. Quite small; dull brownish green with a reddish cheek, dotted and lightly russeted: stalk very long. Flesh juicy, sweet, perfumed, delicious. Shoots dark, inclining, strong. Sept.

St. Ghislain. Remarkably erect neat growth, fine quality. Medium size, tapering into fleshy rings at the stalk: pale clear yellow, with a few gray specks. Flesh buttery, juicy, rich, sprightly. Shoots slender, spotted, purplish brown.

Seckel. World-renowned as the most exquisitely flavored pear, when in perfection. Small; regularly tapering to a flattened base (*fig.*); brownish green, reddened on the cheek; very juicy and melting. Bears in clusters, very young. Hardy; requires manure. Shoots stout, short, olive-colored. Sept. Oct.

Sieulle. (*se-ull.*) A fine early winter pear, excellent as a dwarf. Rather large, roundish; pale yellow with a bright orange cheek;

buttery, fine grained, melting, rich. Shoots vigorous, olive. Nov. Jan.

Spœlberch. (*spel-bairgh*,—the third and last sounds are foreign.) German. A new winter pear highly approved by distinguished culturists in this country. Large; yellow, with a purplish blotched cheek, very rich and delicious. Handsome grower as standard or pyramid: should have good culture. Shoots vigorous, olive.

Steven's Genesee. A new pear of superior merits; native of Rochester. Large, roundish or flattened; turbinate; half-buttery, rich, fine flavor. Shoots vigorous, gray; leaves narrow. Fine on the quince, liable to blight on the pearstock; transient. Sept.

Summer Bon Chretien. (Good Christian.) An old favorite; a good bearer; very pleasant, but not high flavored. Rather large, short, regular, yellow; bakes well. Shoots long, drooping, curved, firm; buds projecting; flowers very large. Aug.

Summer Francreal. Very superior, hardy, thrifty, productive and delicious. Medium size, short, thick: flesh fine grained, sugary, rich; should be house-ripened. Growth very distinct, large leaves and stout shoots, very downy or mealy; makes a fine pyramid.

Suzette de Bavay. A new winter pear of the highest reputation: medium size; knobby; melting, very excellent flavor; remarkably productive: keeps long. Shoots moderate, brownish yellow.

Swan's Orange. New; native: superior in hardiness, vigor, productiveness, great size, and beauty. Very large, thick; yellow, speckled. Flesh a little coarse, juicy, high flavored, fine. Shoots thrifty, upright, greenish yellow. Oct. Nov.

Tyson. New; native of Pa. Perhaps the most delicious pear of its season, preceding Bartlett. Medium size; regular form, bright yellow with russet, and a soft brownish cheek. Flesh nearly sweet, aromatic, perfumed, excellent. A good, but rather late bearer. Shoots vigorous, upright, dark purplish brown.

Urbaniste. Hardy and reliable, late in bearing on pear stocks; one of the best fruits. Rather large, short; pale yellow with faint russet; flesh melting, buttery, fine, perfumed, sub-acid, delicious. Shoots thrifty, erect, bright, reddish olive. Oct.

Van Mons Leon le Clerc. (*la-on-luk-lare.*) Has been pronounced "the best of pears." Very large, handsome and rich here, but in some soils it cracks or blights. Large, long, neck thick; pale or greenish orange, slightly russeted; melting, rich, fine. Shoots upright, brownish or yellowish olive; buds gray. Oct. Nov.

Vicar of Winkfield. Has no superior, considering every quality. Very large, long; stalk oblique; (*fig.*) pale yellow with a dull cheek; flesh a little coarse, juicy, sprightly, sometimes excellent, always superior for cooking. Very hardy and productive, fair, and lasting. The fruit sells in Boston at $1.50 per doz. Shoots rather irregular, strong, brownish olive gray. Nov. to Jan.

Washington. "Decidedly first rate." *Thomas.* New; native of Delaware: medium size, regular, lemon yellow, with handsome red dots. Very sweet, juicy, perfumed: great bearer. Shoots slender, erect, "light gray, with distinct white spots." *Ried.*

White-Doyenne, see *Butter*.

Winter Nelis. Unsurpassed among early winter pears. Everywhere a favorite. Medium size, rather short; (*fig.*) yellowish green with much gray russet. Flesh fine grained, buttery, sweet, sprightly, luscious, aromatic. Very hardy, thrifty, and fruitful: bears early. Shoots slender, much straggling, olive gray: leaves narrow, folding, recurved.

THE PLUM.

THE PLUM is perhaps more generally diffused and planted than any other fruit excepting the apple. Yet it is barely appreciated, and few are acquainted with the extent of its season or the various merits of the numerous sorts.

The firm clayey soils of the valleys east of the Allegheny are peculiarly adapted to its growth, and some of the very finest kinds known have originated in New York and Pennsylvania. In France, Germany and England, this is a favorite fruit, and is sedulously cultivated.

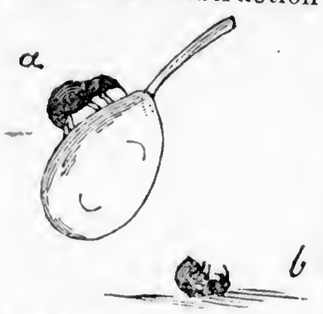
The varieties are remarkably distinct in flavor, varying from the sprightly refreshing acid of the Mirabelle or Damson to the intense unsurpassable lusciousness of the Green Gage or Purple Favorite.

USES.—The richest of pies, tarts and sweatmeats are made from plums, and the best sorts of prunes, properly ripened and dried, are among the most acceptable contributions to the house wife's stores. (71) They are fine, half dried, stoned, and packed in sugar. If suffered to remain on the tree till quite ripe, the plum is no less wholesome than delicious, but they are injurious if eaten green. To prevent temptation or occasion for using them when immature, such a variety should be planted as will afford a continuous supply of sorts and flavors ripening in succession.

In order to have perfect fruit, the trees should not be allowed to overbear. This is conveniently prevented, and at the same time the branches are preserved from breaking during storms, by growing the trees low, as half standards, and shortening in luxuriant shoots (61): managed in this way, they will supply finer, more abundant, and earlier fruit.

SOIL AND MANURE.—(47. 39) In light bottom land, or on sandy soils, some varieties of the plum do not flourish without an occasional dressing of clay. Salt is a useful manure, applied in moderation.

DISEASES, INSECTS, &c.—Of these the plum has its full share. One of the worst pests that the cultivator has to contend with, is the CURCULIO. It is found everywhere, and if let alone, usually effects the destruction of the entire crop of fruit, to the very last plum. It is a small insect, of a dull brown color, and of the form and size seen in the figure. (*a.*) The semilunar marks are incisions made by the insect, into which it inserts an egg. The egg hatches into a worm, which works its way into the fruit and causes it to fall. Soon after the fruit falls the insect passes into the earth, to remain there, perhaps, until the next spring, when it comes forth as a beetle. These beetles, or *Curculios*, are averse to flight during the day, and in cool weather they are almost torpid; but in warm evenings they fly actively, and their punctures are found on the fruit when but just formed. If disturbed, they gather up into a ball, (*b.* in fig.) and drop suddenly to the ground, where they can seldom be found, being disguised by their color and figure. They are extremely shy and cunning, and apt to elude observation. Obeying their instinct, they avoid trees hanging over water, pavement, or hard smooth ground; and the easiest, and one of the best modes of destroying or driving them off, is to keep pigs and poultry in the plum garden, to preserve a bear surface and to eat the wormy fruit as it falls. (47) Indeed Plum, Apricot, and Nectarine trees, should be planted in no other situation, or they will become nuseries of the insect. This practice is also peculiarly favorable to the growth of the tree, care being used to admit no very large swine, while the trees are small, unless the trees are protected by thorns, withed round them.



An effectual way to destroy the insects in other situations, is to spread sheets under the tree and jar it suddenly and violently. The sheets can be more easily used if stiffened by a light frame. To avoid bruising the bark of the trees, tie an old india rubber shoe on the end of a stick and strike with it or against it. The cool of the morning or early evening is the best time, when the insects are not disposed to fly. The credit of suggesting this plan belongs to DAVID THOMAS.—Boys will take delight in thus hunting down the marauder. The odor of manure is said to be offensive to the curculio. Neither salt nor lime prevent it: washes are useless. Single plums or bunches, may be saved by an envelope of gauze, or by cutting out the egg from under the lip of the incision before the hatched worm penetrates the fruit.

Black Knots.—These are similar in appearance to those so commonly seen on the common Morello Cherry. But although the cherry trees are almost exterminated here, the plums are not yet attacked. The knots seem partly to proceed from a constitutional disease in the sap, transmissible by grafts or sprouts, like the yellows in peach trees. Sound stock should be planted from a section where there are no knots; and if they appear, the branch should be cut off at once; or if the knot appears on the main stem, it should be excised to the last vestige of discoloration, and the wound may be washed with a strong brine, or solution of copperas. These measures will suppress the disease.

Some plums, especially the larger and coarser sorts, are liable to rot in showery weather while swelling and ripening. This can be prevented to a great degree by thinning the fruit when half grown, which also greatly improves its quality. In some seasons the leaves drop prematurely, (22) to the great injury of the tree in growth and bearing. (18) The more luxuriant, large-leaved sorts, are usually exempt, and good culture and alkaline manures fortify all.

Dwarfs.—Some sorts are naturally of small growth, and therefore more suitable for small gardens. To render them quite dwarfish and fruitful, check free growth by root-pruning in August or September, cutting all the roots short with a smooth cut. (10.37.62.) Stocks of Mirabelle and Prunus Spinosa, are used for dwarfs.

Varieties.

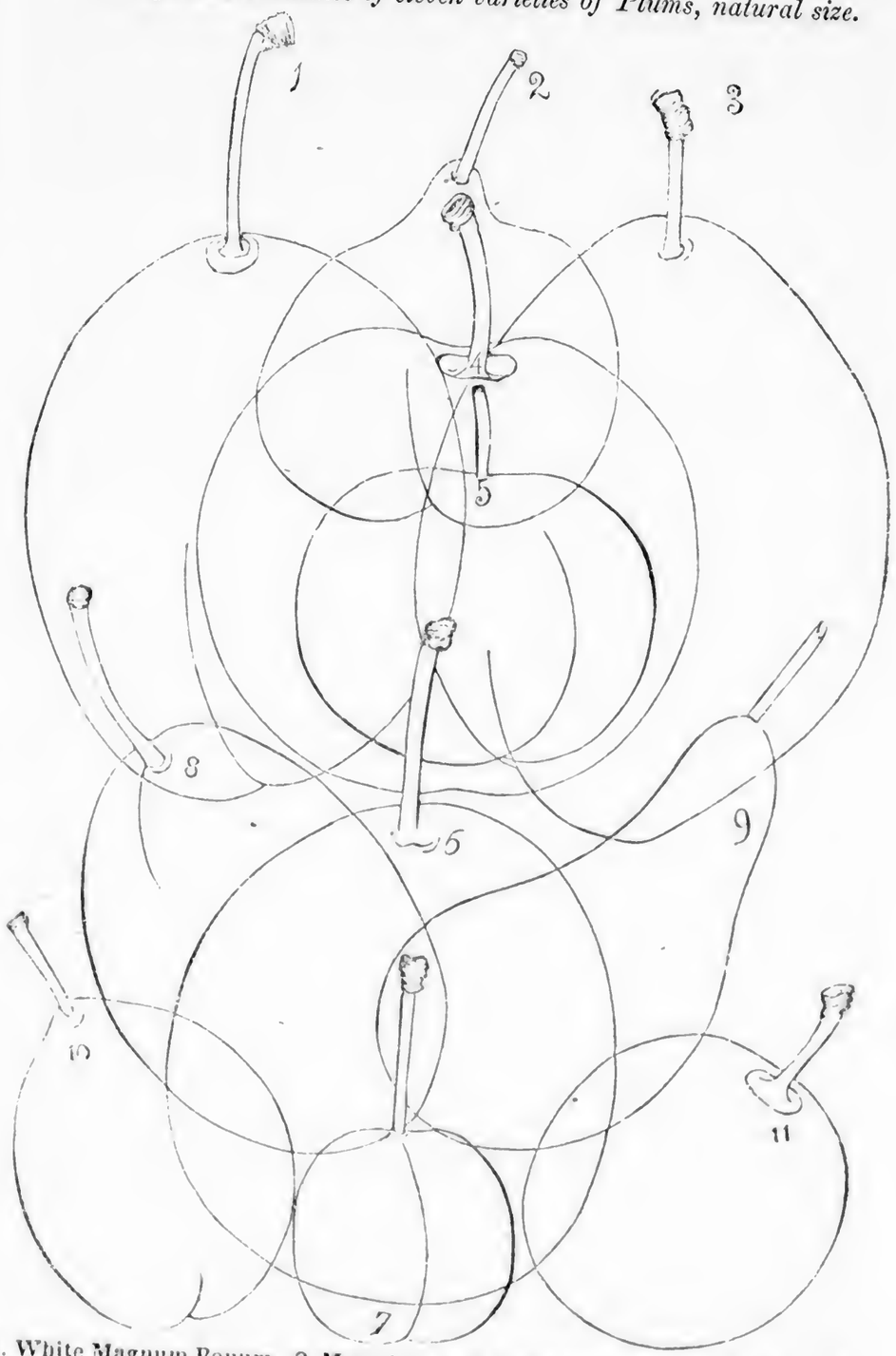
[*Freestones are marked* F.]

☞ Some "Downing" shoots become nearly smooth towards the close of growth.

Autumn Gage. F. F. Valuable for great productiveness and lateness. Medium size, ovate, pale yellow, sweet, juicy, pleasant. Shoots smooth, weak, spreading. Leaves pointed. New; from the Hudson.

Bingham. A handsome, productive, valuable plum, native of Pa. Large, deep yellow, with red spots. Flesh yellow, juicy, delicious. Shoots thrifty. Sept.

Comparative outlines of eleven varieties of Plums, natural size.



1. White Magnum Bonum—2. Mamelonne—3. Coe's Golden Drop—4. Washington—5. Green Gage—6. Jefferson—7. Mirabelle—8. Yellow Prune—9. Red Prune—10. Primordian—11. Frost Gage.

Bleeker's Gage. F. Generally considered first rate; native of N. Y.: hardy and productive. Medium size; yellow, with white sunken specks and light bloom; rich luscious yellow flesh. Shoots thrifty, downy; leaves dark green. Sept. 1st.

Black Nectarine. F. F. One of the most pleasant and useful; very productive and hardy; excellent for drying. Medium size, oval; greenish, blotched with dark mottlings, and overspread with a dull bloom: flesh firm, sweet, sprightly. Shoots rather slender, short jointed, smooth, spreading; leaves and buds small. Sept. 15.

Blue Imperatrice. A rich fruit; hangs and keeps well: hardy. Medium size; somewhat pear-shaped; dark purple with copious bloom. Flesh firm, rather dry, sugary. Shoots slender, long, smooth, issuing horizontally from the stem.

Cherry Plum. A distinct kind with small pointed leaves, slender branches, and very abundant early blossoms. There are golden yellow, and bright scarlet varieties; both are very pretty. Small, bright, juicy, with a brisk lively flavor. Makes productive and profitable dwarfs, if root pruned.

Coe's Golden Drop. Superb. The finest late plum; requires a long season to perfect; some smaller late sorts are more profitable. Very large; tapering towards the stalk; (*fig.*) light yellow, dotted with scarlet: flesh rather firm, rich, delicious. A rather late, but good bearer, and keeps well. Shoots smooth, bright, purplish brown; leaves oval, flat, pointed, smooth.

Coe's Late Red. F. Later than Golden Drop. Very vigorous, fruitful, and delicious. Medium size, roundish, purplish red with blue bloom. Flesh firm, crisp, vigorous. Shoots downy.

Columbia. F. Native. Extremely large, handsome, and productive, but liable to rot. Roundish, one side heavier; brownish purple, with fawn-colored specks and copious blue bloom; juicy and rich. Shoots stout, blunt, spreading, downy; leaves large, round. End of Aug.

Cruger's Scarlet. A beautiful mild fruit, very hardy, and little injured by the Curculio; suits light soils. Shape of Green Gage but larger; lilac and red. Shoots downy. End of Aug.

Damson. The damsons are rather small oval plums, juicy, with a sharp pungent flavor, esteemed for cooking and preserving. The PRUNE DAMSON, F.F. is excellent for drying, of free handsome growth, glossy leaves. WINTER DAMSON is small, round; very late, and exceedingly hardy and productive. The SWEET DAMSON is common under the name of Blue English Plum.

Denniston's Superb. F. Very handsome; new; from Albany. Resembles Green Gage in form and color; but larger and blotched

with purple; and though excellent, less luscious; earlier. Shoots downy, thrifty.

Duane's Purple. A very large, handsome plum, same color as Magnum Bonum; rounder; juicy, sprightly. Popular. Shoots very downy, gray; leaves large, woolly beneath. Aug.

Early Orleans. One of the finest very early sorts. Pretty large; oval; reddish purple, marbled: brisk, rich. Shoots straight, thrifty, downy.

Frost Gage. An immense bearer; very late; profitable. New; native: small, (*fig.*) deep purple; rich, delicious when fully ripe. Fine for kitchen use. "A single farmer on the Hudson, received $1800 for one season's crop of this plum. Price $2 to $5 per bushel." Shoots slender, tall, smooth.

General Hand. Said to be larger than Washington. Less apt to rot, and nearly equal in flavor. Roundish oval, deep golden yellow; stalk long. Shoots thrifty.

German Prune. F. This name is variously applied to seedlings of the German Quetsche and English Magnum Bonum. The true kind is large, long, oval; purple with a thick bloom: flesh green, firm, sweet. It is an excellent sort for drying or preserving. Hardy and productive. Shoots thrifty, smooth. Sept.

Green Gage. F. This name is often erroneously applied. The true Green Gage is the richest of plums. Rather small, flattish round, (*fig.*) quite green, roughened. Extremely luscious. Shoots smooth, very short jointed, brown, stout; buds prominent: growth, at first very slow and crooked; leaves a little folded, very thick, dark.

Guthrie's Apricot. Has the flavor of an Apricot. Medium size, yellow. Newly introduced from Scotland. End of Sept.

Henrietta Gage. Very early, good bearer. Size of Green Gage; paler, high flavored. Shoots thrifty, very downy, light colored. New.

Howell's Early. F. Very fragrant, and very early. Small; light brown and greenish yellow, with a thin bloom: juicy, sweet, melting. Very productive. Shoots slender, downy, gray. July.

Hudson Gage. F. Resembles Imperial Gage, but 3 weeks earlier. Medium size, oval, one-sided; yellow, clouded with green; juicy, sprightly, rich, excellent. Aug. 1st.

Huling's Superb. F. Native of Pa., greatly admired. Very large, color of Green Gage: firm, rich, brisk, excellent. Shoots very stout and downy; buds projecting; leaves luxuriant. Best in strong soil. Aug.

Ickworth Imperatrice. Highly valuable; very late; keeps

long, becoming dry and sugary, like a prune. Rather large, obovate; purple, embroidered with fawn color; juicy, sweet, rich. Shoots smooth.

Imperial Gage. F. One of the very finest and most profitable on light soils; resembles Green Gage, but is larger and longer; marbled with green stripes; much bloom; delicious. Requires thinning. A single tree near Boston produced $50 worth of fruit per annum for three years successively. Shoots very thrifty, long, purplish, a little downy; leaves dark, bluish.

Imperial Ottoman. F. Excels in hardiness and certain productiveness. Not quite so large as Imperial Gage which it much resembles. Excellent quality. Quite early. Shoots a little downy.

Jefferson. F. Of the highest quality in every respect. Native of Albany. Very large, (*fig.*) golden yellow, with stains of blended red and purple, and white bloom; almost equal to Green Gage in flavor. Hardy and hangs long. Shoots short, smooth, buds numerous; leaves glossy, deep green.

Lawrence's Favorite. F. Originated on the Hudson. Considered superior to Imperial Gage; same season and color; larger; vinous, rich. Bears early and abundantly. Shoots vigorous, short, downy; leaves small, dark green.

Lombard. A beautiful, very hardy, vigorous, profitable kind. Native of Albany. Suitable for light soils. Medium size, roundish oval; delicate violet red with thin bloom. Flesh deep yellow, juicy, pleasant. Shoots thrifty, purple; leaves small, crimped. Aug.

Long Scarlet. Very valuable for drying and cooking, makes a handsome, bright, transparent jelly. Medium size, rather long, bright red; flesh rather acid, rich. Hardy, and extremely productive. Shoots thrifty. The Red Prune (*fig.*) is similar in color and quality; but is of very singular form, kidney shaped, with a curved neck.

Mamelonne. F. A very singular fruit, with a grotesque nipple-like neck (*fig.*); green, thickly spotted with red; similar in flavor and growth to Green Gage, somewhat earlier.

Manning's Long Blue Prune. F. Unusually long; very hardy, prolific, and marketable. Very large; dark purple, with dense bloom. Flesh firm, sweet, juicy, sprightly. Shoots smooth. Sept.

McLaughlin. A new plum from Bangor, Maine. "The only variety that can claim equality in flavor with Green Gage." *Hovey.* Large, round; green, becoming yellowish with some brownish red. Very melting, rich, sugary; luscious. Shoots very short-jointed, stout, vigorous, dark, slightly downy; buds very prominent; leaves large, deep green. Aug.

Mirabelle. (*me-rab-el.*) Tree and fruit small, (*fig.*) extremely productive, and very ornamental; valued for preserving. Yellow, prettily speckled with red, bloom white: very pleasant sprightly, perfumed. Shoots slender, downy. Aug.

Peach Plum. F. Remarkable for the vigor of its shoots. Large, roundish, flattened at the ends, brownish red cheek; handsome. Flesh rather coarse, juicy, sprightly, excellent. Rather early. Shoots reddish, smooth.

Primordian, or JAUNE HATIVE. (*zhone-ot-eev*, Early Yellow.) F.F. Valuable as the earliest of plums. Productive. Small (*fig.*); pale yellow; mild, sweet, pleasant. Growth slow; shoots slender, very downy. July 15.

Prune d'Agen. (*dawgh-en.*) Considered the best French prune. Very productive. Medium size, flattened; purple; sweet. Shoots smooth, dark; leaves narrow.

Purple Favorite. F. One of the most delicious; very hardy and productive. Rather large, roundish; brownish purple; rich, sweet, luscious. Hangs long. Shoots very slender; growth dwarfish. End of Aug.

Purple Gage. F. The growth, form, and quality of the fruit resemble Green Gage, but it is of a violet color with yellow dots and a light bloom: rich, sugary, very high flavored. Very hardy, shriveling on the tree without decay. Fine for preserves.

Red Diaper. F. F. Large, handsome, rich red; resembling Magnum Bonum, but not so long: juicy and rich; equal to the last two sorts; superior for baking. Shoots slender, wiry, smooth, dark.

Red Gage. F. F. A delicious native plum, productive, hardy, and free from rot; more profitable than many larger kinds; medium size, brownish; sugary, excellent. Shoots vigorous, smooth, dark red; leaves deep green, crimped. Aug.

Red Magnum Bonum. Admired for its size, beauty and productiveness. Very large, long egg shaped, with a deep suture unevenly dividing the fruit; red or purple, with a light bloom. Flesh greenish, firm, coarse, culinary. Shoots slender, smooth; buds sharp.

Reine Claude de Bavay. (*rane-clode-dub-av-ay.* Green Gage of Bavay.) The finest late addition from abroad, "nearly as large as the Washington, and in flavor equal to Green Gage." Roundish oval, greenish, marked with red in the sun; sweet. Tree vigorous and remarkably productive. Fruit hangs long. Shoots smooth, brown, moderate; leaves roundish, shining, medium size.

Royale. F. Rather large, roundish; reddish purple with brown specks, and much bloom: flesh rather firm, rich, crisp, vinous. Growth dwarfish, shoots very downy, gray, spreading.

Royal of Tours. (toorz.) Large, roundish, one-sided; deep violet and red with blue bloom; juicy, rich, high flavored. Shoots very downy. Early.

Royal Hative. F. (ot-eev.—Early Royal.) One of the very best of its season; resembles Purple Gage in growth and fruit, but the shoots are very downy, and it is a month earlier.

St. Martin's Quetsche. F. F. A new German prune of high character; productive and profitable; medium size, ovate; pale yellow with brown spots and white bloom; juicy, rich, excellent. Shoots smooth. Late.

Schenectady Catharine. F. New; distinct; superior in quality. Small, roundish, deep purple-violet; melting, rich, honied. Shoots slender, smooth. Aug.

Smith's Orleans. Greatly preferred by many. Large, oval, reddish purple, bloom deep blue: flesh yellow, juicy, firm, rich, peculiarly fine. Shoots straight, glossy, purple, extremely vigorous; leaves dark green, crimpled. Good on various soils. Aug.

Washington. F. (Bolmar.) Native of N. Y. Very showy and greatly admired. Large, (*fig.*) 6 to 7 inches round, weighing 3 to 4 ounces. Yellowish green, faintly marbled and tinged. Flesh firm, very sweet and luscious. Hardy, but rather liable to rot. Shoots stout, downy, brown; leaves large, very smooth, glossy, thick. Aug.

Yellow Magnum Bonum. Long considered the largest of plums; very beautiful, fine for preserving. Productive, but inclined to rot. Long oval, (*fig.*) with fleshy rings at the stalk, golden yellow. Shoots long, erect, dark brown. Sept.

Yellow Gage. F. (Prince's.) Medium size, oval; golden yellow, clouded, and covered with copious white bloom; flesh rich, sugary, melting. Shoots smooth, short jointed, thrifty, spreading; leaves glossy. Very productive. "Mr. Vandyne of Cambridgeport, raised $51 worth from one tree, in one season." *Cole.* Early.

Yellow Prune. F. F. One of the very best and earliest prunes; medium size, long, (*fig.*) clear yellow; mild sweet flesh; a profuse bearer. Shoots downy, reddish, angular, numerous, irregular; buds projecting, leaves corrugate. Aug.

THE QUINCE.

THE Quince tree is very hardy, and singularly crooked and irregular in its habit of growth. The fruit is very showy and fragrant, but too austere for eating. It is, however, quite valuable in domestic economy. It gives a peculiar and agreeable zest to apples when cooked with them, and makes of itself one of the most admired of preserves. Quince butter is much relished.

The seeds are highly mucilaginous, and afford a gum similar to gum arabic. Quince marmalade, in the quaint language of an old writer, is "toothsome as well as wholesome." Stew the cored quinces for an hour with the seeds and a moderate quantity of sugar, stirring well. Turn into forms, and when cool, it will be perfectly stiff.

Quince wine, made from the cored fruit, and with the addition of 4 or 5 pounds of sugar to each gallon of watered juice, is said to be delicious, and is used by asthmatics. The fruit has a stomachic and astringent quality; "stewed and eaten with sugar, it is useful in dysentery."

The quince was highly estimated by the ancients, who very frequently speak of the fruit. It was the emblem of happiness and love. It was dedicated to Venus, and was eaten by the bride before entering the marriage bed.

Enemies.—The quince is somewhat liable to blight on the ends of the branches, and to the attacks of the borer at the root. (See *Apple and Pear.*)

Soil, Manure, &c.—The roots of the Quince are hardy, (7) and will bear more water, and moister, cooler soil, than those of other fruit trees, but it succeeds well on dry soil enriched and mulched. Salt is said to be peculiarly beneficial to the quince. The tree has a habit of throwing up suckers; it should be kept to a single stem like a currant or gooseberry bush. Quinces appear to have been unusually excellent of late years.

There are three principal varieties.

THE APPLE QUINCE. The largest and most productive. The fruit is large, roundish, deep yellow, stews tender, and has an excellent flavor. It is earlier than the next, and of freer growth.

THE PEAR-SHAPED QUINCE. This is smaller and has the shape indicated by its name. It is less lively in color, and does not stew so tender as the apple quince. It is later and keeps longer.

PORTUGAL QUINCE. Quite large, rather pear-shaped, tapering to each end: yellow; milder and more juicy than the others,

It becomes of a fine purple or deep crimson when cooked, and makes a beautiful marmalade. It is reputed to be less productive than the apple quince. Shoots thrifty; leaves large, broad, heart-shaped.

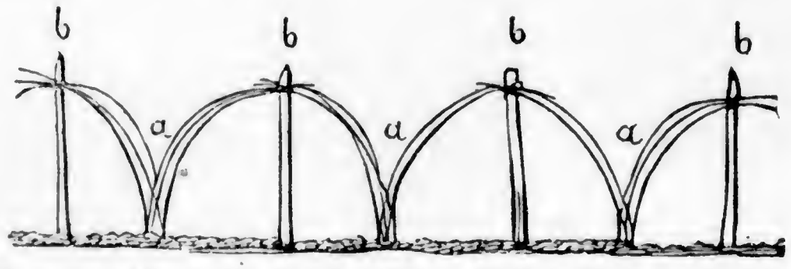
The **China** and **Japan** Quinces are among the prettiest of ornamental shrubs.

THE

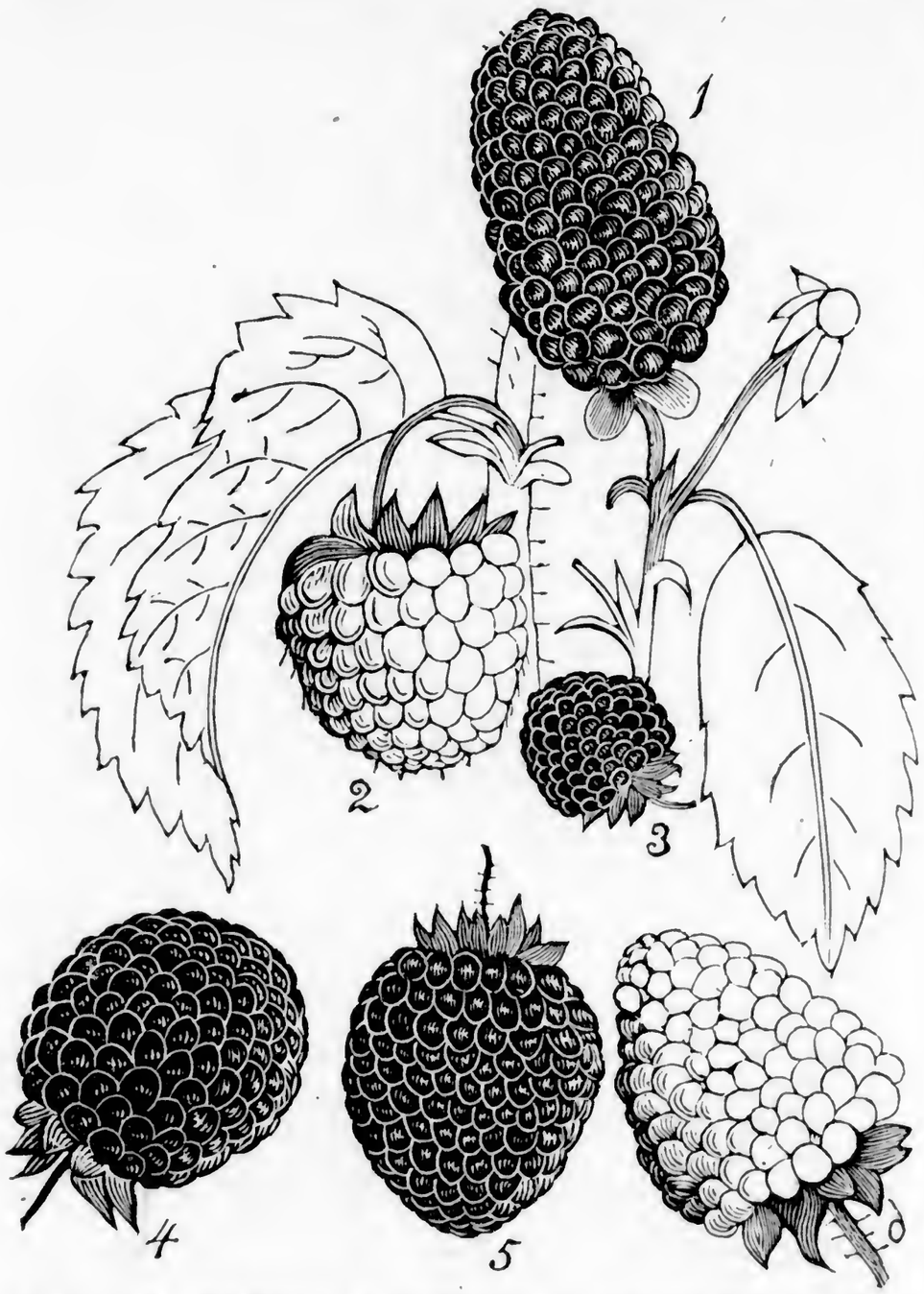
RASPBERRY & BLACKBERRY.

THE Raspberry is an agreeable succession to the strawberry. Its flavor is greatly admired, but it is quite fugacious, and requires the best management of the housewife, to retain the delicate volatile aroma of the fruit in the much admired jams, syrups, jellies, wines and vinegars which it forms, either alone, or, as is frequent, mingled with the acid of currants. Raspberry flavor is often given to Ices. The wine is said to be of all home-made wines, most delicious; "it lightly and pleasantly stimulates the nerves of the mouth and nose with a most agreeable smell and taste." Dr. Franklin found the use of raspberries more effectual in removing the pain from *Urinary Calculi* than any other remedy.

The plants should be set in rather moist loamy soil, in hills about 3 or 4 feet apart, and 3 or 4 plants in each hill 6 or 8 inches apart. The ground should be well mulched every spring. Prune out all the last year's wood (61) and feeble or redundant canes in the fall or early spring, cutting off the ends of those that are left for bearing. A hoop may be used to support the canes, encircling the stool at 3 or 4 feet from the ground: each cane should be tied or wrapped close to the rim of the hoop at a uniform distance, one from the other: this looks well. The following method of using a stake is excellent.

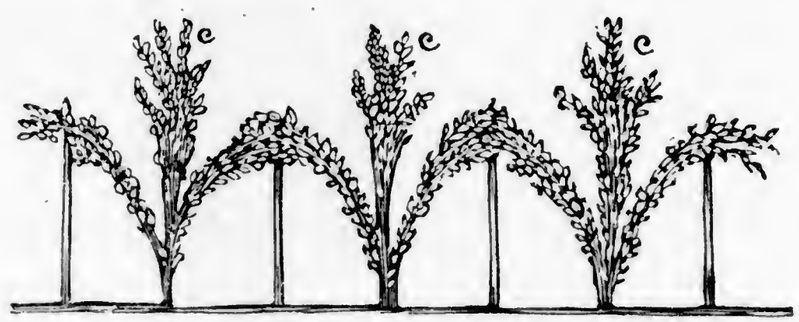


a. a. a. are the stools, from which the old wood and redundant new canes have been cut away: b. b. b. are stakes 4 or 5 feet long, to which the canes which are to bear fruit are bent and tied.—c. is



1. Cultivated Blackberry—2. White Antwerp—3. American Red—4. Fastollf —5. Red Antwerp—6. Cushing.

the summer's growth of new canes, which in this mode of training are separate from the bearing wood to the advantage of both, and convenience of the cultivator.



The canes of the Antwerp Raspberries are sometimes winter-killed, if not protected. They always bear better if covered during winter, by laying pine branches or litter over them; or, which is the best and generally the easiest mode, and most secure from mice, bending them over a little raised hillock of soil, and covering with two or three spades full of clean soil, to a depth of 3 or 4 inches. This should be done in November, and it should be removed at the close of hard weather, in March.

The finest varieties of Raspberries are largely cultivated for the city markets, and command high prices. An acre on Long Island produced $743 clear gain in one season, after paying $157 for expenses. (71) Mr. Denniston of Albany, a famous plum-grower, who has a garden of 4 acres, from which he has sold $1000 worth of plums, and several hundred dollars worth of other fruits in one season, cultivates raspberries in the shade of other trees.

Select Varieties.

AMERICAN BLACK. Grows everywhere naturally. It is more acid than the exotic raspberries, and is preferred by those who have been accustomed to its use; fine for stewing. Rather late. The *American Red* and *American White* resemble the black in shape and flavor. The shoots nearly correspond to the fruit in color; they are much stronger, smoother and brighter than those of the following varieties.

COL. WILDER. A new seedling raised by Dr. Brinkle, Phila. from seed of the Fastollf. Very large, roundish, cream colored, semi-transparent, fine flavor. Early, hardy, very vigorous. Spines white, leaves much crimped.

FASTOLLF. Very large, roundish, bright purplish red. Flesh tender, very rich, high flavored. Canes stout, upright, branching, light yellowish brown: spines numerous and strong.

FRANCONIA. More sprightly than Red Antwerp; ten days later. Fine for market; excellent for preserving; hardy. Very large, conical, obtuse; darker than Fastollf; flesh firm, rich. Canes very strong, branchy, yellowish brown; spines scattered, stout, short, purple: leaves long, thick, firm, less wrinkled than other kinds.

KNEVETT'S GIANT. A capital English raspberry, ripening among the very earliest; excellent for market. Large, conical, deep red; flavor excellent. Canes strong, hardy.

LARGE FRUITED MONTHLY. Bears from Aug. to Nov.; new; large, red. Canes long, rather slender, purplish in the sun, and pretty thickly covered with dark purple spines.

RED ANTWERP. Large, conical, pointed; dull red; rich and sweet. Canes moderately strong, yellowish, becoming pale brown, nearly smooth above, dark brown bristles below; leaves large, plaited. Usually requires protection. A spurious and inferior sort is common.

YELLOW ANTWERP. Very large, nearly conical, pale yellow, sweet, fine flavored. Canes stout, vigorous, yellow; spines slender, thickly set. Long in season.

Blackberry. This fruit immediately follows the Raspberry; and though so common and so fine in a wild state, its culture is found very profitable for the city markets. "In perfection, it is not excelled by any fruit that the wild world produces"! *Cole.*

It is of the same genus (Rubus) as the Raspberry, and differs from it chiefly in the fruit not separating from its receptacle or core,—in the usually square and fluted stem, and stout curved prickles.

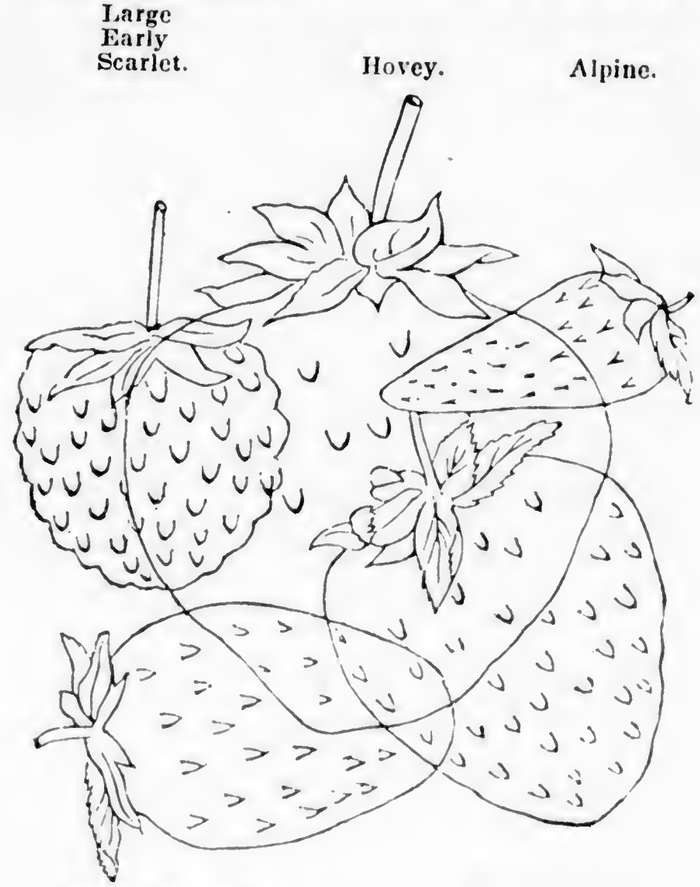
When fully ripe, it is delicious for the dessert, excellent when stewed or prepared in various ways, and it is valuable medicinally. Blackberry wine is very superior, and the vinegar is excellent.

The Trailing Blackberry or Dewberry, is well known. When in perfection, it has a very rich aromatic flavor, resembling the orange.

Some varieties are found much superior to others in cultivation, specimens attaining an inch and a half in length, with a superior flavor. An improved domesticated variety, introduced by Capt. Josiah Lovett of Beverly, Mass. appears to be peculiarly valuable. The Massachusetts Horticultural Society, is stimulating attention to this fruit, and we shall probably soon hear of advanced improvements.

THE STRAWBERRY.

Comparative outlines of Strawberries, natural size.

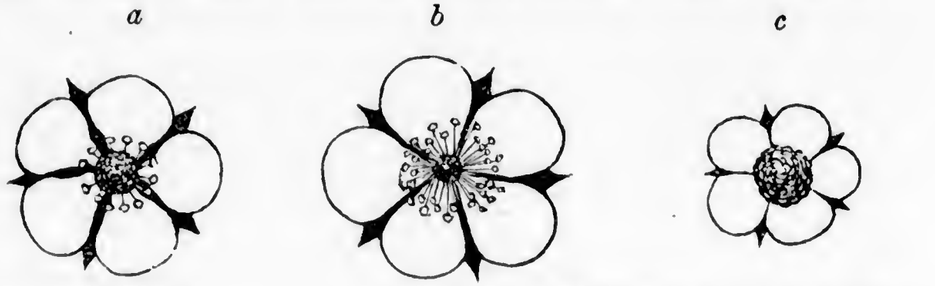


The Strawberry is at once the earliest, the most exquisite, most salubrious, and most readily grown, of all fruits of temperate climes. At the same time, no fruit is so little subject to disease or destruction by insects; yet, owing to its manner of growth and bearing, a degree of care and culture is not only necessary, but indispensable.

The Strawberry agrees with the most delicate stomachs, and its free use is always salutary. Immense quantities are grown near the cities, and sold at high prices; an average of 200 bushels per day, supplied to Cincinnati, only accelerated the demand.

Most varieties of the Strawberry are of a diœcious character; some are therefore positively barren, while others, in favorable

circumstances, are prolific beyond any other fruit on the same area. The *male* and *female* plants are distinguished by their blossoms.



a — Perfect, or hermaphrodite blossom. Productive.

b — Staminate, or male blossom. Sterile.

c — Pistillate or female blossom; productive, if growing near a perfect or staminate plant.

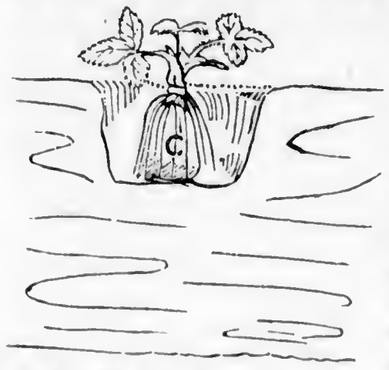
In the perfect blossom, (*a*) the central part is the germ of the strawberry, having a perfect pistil (short tube or 'silk,') for each seed in the berry; (23) the small stems around it are the stamens. In the male plant, (*b*) the blossom contains abundance of stamens, but no (perfect) pistils. Varieties bearing such blossoms are worthless; as they do not produce fruit, their strength is wholly expended in growth, and if present in a bed, they will soon overrun the weaker fruit-bearing plants. (25) The pistillate blossom (*c*) contains only the germ of the berry, with perfect pistils, and no (perfect) stamens. It is usually smaller than the staminate blossom, and looks more bare. Mr. Longworth's German vinedresser expressed the difference, by saying "de husband, he have de beard, (*stamens*,) de frow, she have none."

The proximity of staminate or perfect blossoms is essential to the productiveness of pistillate varieties, and a small proportion in a bed is sufficient to ensure a full crop. Of course perfect blossoming kinds are preferable for this use, as they will produce a crop of themselves. Large Early Scarlet is generally used, as it is an excellent and productive sort, with perfect stamens, and expands its blossoms early.

This irregularity in the character of the strawberry plant, (being partly perfect and partly diœcious,) has caused much perplexity and controversy among cultivators, and it is but lately that the true condition of the case has been determined.

Soil and Culture.—The best soil is a good free loam, and it should be made deep and rich. (33) Set young plants either in August, if the weather is moist, or (strong plants) in April; if planted in the fall, they are liable to freeze out, but this can be prevented by pressing the earth firmly around them, and covering well with leaves, or evergreen spray. In cold districts, it is well

to cover the beds with leaves or straw every winter. In planting, the long fibrous roots must not be crowded together, or they will mould and decay. To separate them, place a small clod or stone (*see figure*) in the middle of the hole, and set the plant astride on its summit, spreading the roots so as to depend regularly around it: then fill with fine mould; water, and if necessary, shade for a few days. If plants, received from a distance, appear mouldy, rinse them thoroughly with water, immediately before planting.* Mulch well. The rows may be about 18 to 24 inches apart each way; sometimes they are left wider in one direction to admit a cultivator. Every third or fourth row, or every fourth or fifth plant should be staminate, if the rest are pistillate. Hoe and suppress runners, and in October work in a dressing of manure. The second spring, hoe once and cover the surface with a mulching of leaves or litter. If proper kinds have been planted, there will be a full crop. In October, dig in manure as before. (40) Dry weather at the season of ripening, greatly reduces the size of the fruit.



A strawberry plant fails after producing one or two crops, it is therefore necessary to train a succession of new plants for bearing. This is sufficiently indicated by the habit of the plant, and its profusion of runners: the easiest method of effecting it, is to dig under in strips the slants which have just borne fruit, every year; leaving equivalent strips of young plants for fruiting next year, the growth and strength of these will be greatly promoted by the operation. If the bed becomes grassy, it is best to form a new one, as the grass cannot be extirpated without injury to the plants. As the suppression of weeds is the chief and almost the only difficulty in the culture of the strawberry, clean soil should be chosen, and care used in applying manure free from seeds. A small bed, of two or three perches, properly managed, will yield an abundant supply for a family.

Select List of Varieties.

[*Pistillate sorts marked* P, *others perfect.*]

Alpine, Red Monthly, and White Monthly. Rather small, long, sweet, high flavored; ripen later than others, and continue to bear, if not suffering from drought, until frosts. Valuable. The late crop will be more abundant, if the spring blossoms are cut off.

* Apples gathered into large piles for grinding, have been preserved from decay, by pouring water on them weekly; the fruit being elevated on hurdles, so as to allow the water to pass freely through.

Bush Alpine, RED and WHITE. These are peculiar in having no runners; they are easily cultivated and are suitable for edgings to beds, &c. They have the same merits as to bearing as the Monthly Alpines, and are even more productive. Flavor excellent. They do well in a shaded situation. An accomplished and generous-minded amateur friend suggests the value of this class of strawberries to invalids. They are always at command, and peculiarly grateful and refreshing.

Black Prince. P. Quite large, roundish, bright black red. Flesh firm, mild, and very sweet. Hardy; fails in some soils. Leaves broad, flat, dark green, serratures obtuse.

Boston Pine. Large, roundish, regular, deep red. Flesh pale red, solid, rich. Hardy, and productive with good cultivation and the suppression of runners.

Burr's New Pine. P. Large, (an inch, or inch and quarter through,) roundish conical, smooth, pale red. Flesh pink, very tender, fine flavored, first quality. Very productive. Leaves large, wide.

Hovey's Seedling. P. A magnificent berry, hardy and luxuriant; requires room and good culture; roundish oval, deep shining scarlet: flesh firm, rich. Leaves large, light green.

Hudson. P. Medium size, sometimes necked, dark rich red: firm, high, brisk flavor. Extremely productive, bears carriage well.

Jenny's Seedling. P. Medium size, acid flavor, firm, fine for market. Very productive. Approved at Cincinnati and Boston.

Large Early Scarlet. Rather large, roundish ovate; bright red, tender, rich. Productive and quite early.

Prolific Hautbois. (ho-boi, high stem.) Large, long; purple; seeds projecting; flavor peculiar, rich, musky. Plant tall and luxuriant; leaves large, crimped; blossoms showy.

Rival Hudson. (*Burr's.*) P. Medium size; dark red; rather acid; hardy and productive; valuable for marketing and preserving.

PART II.

HOW, WHEN, AND WHERE TO PLANT.

GENERAL RULES,

FOR THE

SUCCESSFUL & ECONOMICAL CULTURE OF FRUIT TREES AND PLANTS, WITH REASONS AND DIRECTIONS FOR THEIR INTELLIGENT APPLICATION, UNDER VARYING CONDITIONS AND CIRCUMSTANCES.

BY having some knowledge of the natural principles and laws of STRUCTURE and GROWTH, (Physiology,) and so understanding the why and the wherefore of all directions given for the management of fruit trees, the culturist is enabled to vary his treatment as circumstances vary. He will know the cause of failures, and the reasons of success. An interest and a value will by degrees attach to every leaf and twig and rootlet, and even the soil itself will become precious in his sight; it will no longer be mere dirt, but a magazine of wondrous and precious ingredients, (39) which it behooves him as carefully and wisely to compound, as if he were making up a cook's juncate or a physician's recipe.

The actual annual loss resulting merely from a want of intelligent knowledge of this kind, is incalculable. Without it, culture is wholly empirical, and continually liable to disastrous mistakes and failures. Every one nowadays is ready to laugh at the ludicrous coaxing, so sedulously practiced by the Wassailers of olden time; yet many do Dame Nature more grievous despite, than to

> Wassaile the trees, that they may beare
> You many a plum and many a peare,
> For more or less fruit they will bring
> As you do give them wassailing.*

* The principal tree of the orchard was reverently approached on a certain day, a propitiatory address was chanted while passing in procession round it with bowed heads, a cup of the juice of the fruit was poured as a libation over the roots, &c.

In considering, first, the various ORGANS of plants and their FUNCTIONS, we begin with

THE ROOTS.

2. A healthy young transplanted tree, like a seed, contains a stock of nutriment laid up within its tissues, sufficient to sustain the vernal growth until the new roots are formed necessary to continue the process. But, unlike a seed, in which this store of sustenance is enclosed within a varnish which enables it to withstand exposure to the air for a length of time, the tree is dependant for its life on the protected condition of its roots. These must be continually moist, yet without being soaked or sodden, and not exposed to air or to frost, as both are destructive,—the former by drying and closing the pores and cells—the latter by bursting and disorganizing them. It is however absolutely necessary (32) that air should freely permeate the bed of soil in which the roots are contained.

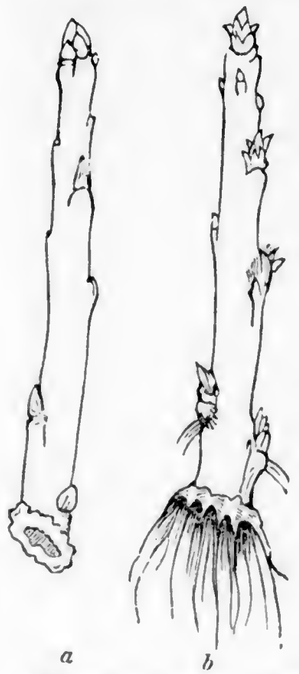
3. A young tree having been planted in soil of proper condition, the warmth of spring causes a flow of the sap, commencing in the ends of the branches (5); the buds swell; with a little increment of warmth they burst open; leaves begin to unfold; the sap stored in the branches (16) speedily evaporates or is lignified by the leaves; and now the roots are craved for a further supply.

4. This is the most critical stage in the growth of a transplanted tree. Thousands of young trees perish every year from inattention to the circumstances which secure or prevent success at this point. They will be pointed out and described as plainly as possible, in the following sections, which it is hoped will be carefully read and re-read, so as to be understood and remembered.

5. For the sake of illustration, we may say, that the sap vessels at the extremities of the branches being emptied as soon as leaves are partially opened (18), *suck* or *draw* the sap from the vessels beneath them, (the pipes or tubes which contain the sap being full of sustaining valves opening upwards, similar in effect to those of a pump,) and thus all the vessels to the extremities of the roots are successively emptied upwards. We might borrow an illustration from the common mode of conveying water from a stream to a fire engine, by comparing the sap vessels to the line of buckets; the stream, to the soil in which the roots lie; and the emptying buckets, to the leaves.

6. But while this current is passing upwards through the wood, a descending flow of sap prepared and thicked by the action of the leaves, is flowing down and depositing between the bark and the wood. This downward flow is evenly spread and deposited over the whole surface of the last year's growth to the extremities of the

roots, where it causes an emission of young rootlets. These are at first white, soft, and extremely tender, but they immediately begin to drink in the juices of the soil. It is however, only at their ends that they have mouths, and these ends, (spongioles,) are continually renewed and advanced by the progress of the descending sap.



If pieces of green twigs that have accidently been buried in the soil in Autumn, are dug up in May, they are found to have protruded their buds, and at the lower or cut end, a callous or uneven ring of spongy sap has been emitted between the bark and the wood (fig. *a.*) Now if this be a twig from a currant bush or any other plant that roots freely,* and if the buds, or part of them, be above the surface, so that the leaves can open into the air, the ring of sap will protrude spongioles; (fig. *b.*) these will continue a supply of sap to the leaves for digestion; (18) and, if the condition of the atmosphere be favorable, the twig † or cutting will become a well rooted established plant.

7. To return to our transplanted tree—We have learned how, under favorable circumstances, the young roots are formed; we must now consider what should be avoided as detrimental to their healthy action.

It is obvious that if the roots are either dry or disorganized, as by the effect of disease, or extremes of heat or cold, (2) the current of sap flowing from the stem will be arrested, and the tree, having just leaved out nicely, (3) suddenly perishes, to the surprise and chagrin of the planter. Every reader who has suffered disappointment of this kind, will desire to know how to distinguish whether roots are in a healthy condition before planting. On cutting off the end of a root, if sound, it will appear juicy, plump and fresh in color; not discolored as dry wood is, compared to that which is freshly cut. ‡ (Some roots are naturally of a brownish color.)

* Fruit trees root with greater or less facility, in about the following order:—Currants, gooseberries, grapes, quinces, mulberries, raspberries, plums, apples, cherries, apricots, pears, peaches. The first six can be grown, with care, from cuttings.

† Screens and glass are used to counteract atmospheric vicissitudes.

‡ If the roots of a tree become accidently frozen while out of the ground, the injury can be palliated by burying them in the soil *while frozen*, and leaving them for some days until the frost is by degrees wholly extracted.—The roots of trees vary in their ability to sustain exposure. Plum and quince roots have the greatest vitality; next in order—apple, currant, gooseberry, pear, grape, strawberry, cherry, peach. The roots of Evergreen plants scarcely bear to be dried in the least degree.

8. But the roots, though sound in other respects, may be much bruised or broken. This admits of remedy. In practice it is usually advantageous moderately to prune the roots as well as the tops of a tree. If the trees have been transplanted two or three times in the nursery, and the roots cut back each time, the advantages are, that they become more numerous, occupy less space, and large trees can be removed with less violence. If long, naked roots, bare of radicles, are cut in towards the stem, the descending sap sooner arrives at the soil to form new spongioles. (6) The cut should be smooth, so that the new and tender roots can readily pass into the mellow soil; if it is rough and ragged, or if it does not reach to sound wood, it is obvious that the tender rootlets cannot readily get into contact with the soil, and must therefore perish. This pruning should be done immediately before the tree is planted; of course before any growth is excited.

9. The roots may be healthy, and may be properly dressed with the knife, but they may be imbedded in soil where the young rootlet finds itself among impervious clods, or in a vacuity containing only air. In the first case, the disadvantage and the remedy are obvious; (33) the other is a more serious condition, for air, even in the absence of light, is as unnatural to the young spongiole (6) as it is to a fish, although neither the root nor the fish can live without air properly supplied. (32) Young rootlets projected into such vacuities will perish, and if nearly all the roots are surrounded by air at the extremities, (6) the whole tree will fail.

10. It often happens, that after all the requisitions so far enumerated, have been properly complied with; abundance of spongioles have been emitted from the fresh, healthy and well situated roots, and the tree is rich in leaves and in a flattering state of growth; when a storm occurs, the plant is violently racked, the brittle young rootlets are torn from the roots, and growth ceases until the store of descending sap forms new spongioles, to share perhaps the same fate: at the best, there is a serious loss of growth. It is then very necessary that the stems of tall trees should be so secured by staking, that the vibrations at the top may not tug at the roots.

The *roots* of a tree, if in wholesome soil, retain their vitality much longer than the top; so that, if the branches are decayed, by heading down to the surface or to sound wood, vigorous shoots will issue; which, with proper care, will soon form a more luxuriant and fruitful top than at first, but shortlived. (15)

THE STEM AND BRANCHES.

11. THE flow of sap, upwards through the sap-wood, and downwards under the bark, has been described (6);—We have now to consider what conditions of the *stem* will be favorable to this circulation.

If the *stem* of a young tree is exposed to dry air, and no moisture is supplied by the roots, it soon shrivels so much that the pipes which convey the sap become closed. Watering a tree at the roots, while in this condition, only promotes decay, if the stem remains dry, as the moisture cannot descend, or circulate. In such a case, it is best, if the tree is yet unplanted, to bury the whole plant in soil for a day or two until plumpness is restored. If planted, the stem should be wrapped or shaded, or both, and *frequently* moistened until growth has fairly commenced. At the same time, the surface over the roots should be mulched, (37) to preserve equable moisture to them.

12. Older, established trees frequently suffer from a like cause. It is a most common yet most injurious practice to *trim up* trees, under the supposition that it promotes growth. (63) The general mistake has probably arisen from observing the handsome native trees of the crowded forest, which having afforded each other mutual *shade*, have attained a great height without side branches. A little observation however shows, that, in all cases, if one of these trees be left to stand alone, deprived of the shelter of its prostrate fellows, its growth is arrested at once, unless side branches are emitted sufficient to protect the stem. The blaze of the summer sun and the force of drying winds acting full on so large a surface of bark, makes it dry and rigid,—the sap-vessels close,—the wonderful force which propels the sap, is insufficient to carry it to the extremities of the branchlets; the leaves dwindle, the roots languish, and the whole tree, or at least *its top*, in a few years goes to decay, if not laid low by storms.

How much more liable to such a fate are the more tender barked domestic trees; the apple, the plum; and especially the pear, the cherry, and the peach. The *stems of these should be entirely protected by foliage* or otherwise, during the heats of summer. The principle is indirectly acknowledged by the many who believe it necessary to plant a tree with the same aspect as previous to its removal,—a needless precaution however, with leafy young trees.

13. When trees have a thick hard unyielding bark, owing to their having been long in a stationary condition, the whole coat may be stripped off towards the last of June with advantage. The change in the quality and size of fruit from some apple trees so treated, under the writer's observation, was remarkable. This

should only be done when there is an abundant layer of prepared sap (6) to form a new coat of bark, and this sap must of course be protected from being rubbed, washed, or dessicated by exposure, until it becomes lignified.

When it is necessary to prune away branches larger than will heal over in one season, some *substitute* for the natural protective coating of *bark* should be applied, (64) otherwise injury is sustained, by the drying and decay of the wood adjacent to the wound. The operations of Nature are never at a stand still, and if the wood of a tree is not growing, increasing, or replenishing, it decays. If a newly planted tree therefore, does not make actual *growth*, during the summer, it suffers a degree of irreparable injury by falling back to decay.

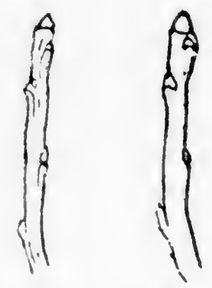
14. To soften the bark of young growing trees, to enable it to expand freely, and to destroy or drive away moss and insects, a wash should be applied at least once a year. Strong soap suds, soap lees, or lime wash are good applications; salt, soot, tobacco, sulphur, hen-manure and clay, or cow-manure may be added with advantage. Make the wash more caustic for thick, hard, rough bark, and scrape or pare it with a drawing knife or sharp spade, before making the application.

15. Varieties of the same fruit differ with respect to the vitality and hardiness of the wood. Natural seedlings of firm, compact, leafy, rugged growth are long lived; while luxuriant, thrifty, handsome growers soon fall into debility, after producing a few crops of fruit; and may justly be looked upon as "showing the same indications of premature decay and death, which the physician sees in the tall, slim, fair-favored, smooth skinned, scrofulous boy, or the pale faced, girded and corsetted maiden—beautiful, but the wrong sort of beauty for this rough actual world." *Professor Turner.* If a strong stock be cut off at the ground to receive a graft, the shoot will be tall and luxuriant perhaps, but the soft porous wood will be wholly unlike the firm, compact, closely knit texture of the seedling stock. The difference is obviously seen and felt on cutting a twig of each with a knife.

It is best then, so far to follow the practice of the experienced and closely observing gardeners of Europe, as to make the stems of trees, when practicable, of hardy stocks, and to avoid rank manures (39) and such circumstances of position and culture, as tend to stimulate excessive and irregular, and so-called handsome but imperfect growth.

In regard to natural longevity, the most common fruit-bearing trees stand about in the following order: Peach and Plum 20 years; Cherry, 30; Apple, 50 to 100; Pear, 100 to 150; Grape, 200 to 400 years.

16. A difference is apparent between the autumnal condition of young shoots, compared with their appearance in the spring. In the fall they are somewhat thin looking and imperfect, (*a* in fig.) but towards spring they become plump and bright, the shriveled lines are obliterated, and the buds and wood are rounded, full, and of a darker color. The fact is, that trees absorb food, by the roots, if not reached by frost, even when destitute of leaves, or when the leaves rest; as at night, or between growths (19);—a current of sap flows upward, the more watery parts of it are evaporated through the bark, and the remainder is stored within the cells of the wood; and in proportion to the amount thus stored, will be the vigor of the succeeding growth. The roots being in a warmer medium during winter than the top, thus communicate warmth to it, sufficient as is commonly seen, to dissolve snow which may be in contact with the stem.



a *b*

a. terminal shoot in autumn.
b. same in spring.

17. It sometimes happens, when, from late culture or peculiarity of the season, the autumnal growth is protracted and a sharp frost occurs while the vessels are full of liquid sap, the trees are seriously injured, blighted or entirely killed by a freezing of the sap, and a consequent violent bursting of the vessels and separation of the wood and bark usually near the surface. When this is apprehended, growth may be checked by severing the tap roots in August with a spade, or by removing a portion of the leaves, or pinching off the ends of the shoots in September.

If the roots, protected by a thick covering of snow, are active during winter, while the top is exposed to severe frost, trees are killed which would have borne much more intense cold in a torpid condition of the roots.

A similar catastrophe happens occasionally in the spring, by severe frost occurring after warm weather has induced a flow of sap. But the appearance is different, the frozen sap not having time to become dry, is carried in drifts by the next flow when growth recommences, and lodging in spots and about buds, oozes out, or appears in discolored swellings. The more tender barked trees as the pear, the peach, and the cherry, are most liable to suffer in this way, especially in low situations. (41)

THE LEAVES.

18. Leaves are ingeniously adapted to perform for plants those offices which, in animals, are proper to the lungs and stomach. The food supplied by the roots is gathered with little discrimination, but the leaf, like the digestive apparatus of an animal, reduces all that is fit to nourish the plant into a blood, a prepared sap, which in its descent, penetrates and adds to the growth of all parts of the tree. (6)

The blood of animals, in its infinitely subdivided and constant current through the innumerable cells of the lungs, is aired at every breath, and thus *derives* the continually needed *oxygen;* but the sap of plants in passing through the leaf *gives off* redundant *oxygen*, and in this way each supplies the wants of the other.

The crude sap ascending from the roots into the upper side of the leaves, is brought into contact with the air by means of myriads of pores, chiefly opening on the lower side of the leaf, (50,000, less or more, are found on a square inch by the aid of a microscope,) redundant moisture passes off by perspiration (to the amount of as much as a pint a day in a large leaved plant, three feet high,) and this process goes on until disease or age impairs the functions of the leaves, they drop, and the circulation comparatively ceases. (16)

19. At the base of every leaf-stalk is a bud which, like a seed, contains the rudiments of a new branch, and which may be removed and planted at the proper season (67) beneath the bark of another tree of the same kind. To every leaf, consequently to every bud, there is a tube or sap vessel with all its apparatus of valves, &c. (5) extending from the leaf to the extremity of a rootlet, where it terminates in a spongiole. In trees where the leaves are small and numerous, these vessels are necessarily more compact; in large leaved trees they are much larger, and consequently the wood is more porous and coarse.

It follows that a leaf cannot be taken from the tree during growth without a degree of injury. It is equivalent to the stopping or clogging of an air-cell in the lungs. During the "rest" or interval between the "spring growth" and the "August growth" (a phenomenon not fully understood, but resembling the rest of tropical plants during the dry season,) the leaves appear to be inactive, and part of the leaves or branches can be removed with little check to the succeeding "second growth."

20. The chief ingredient in the sap, as collected by the roots (besides water) is *carbonic acid.* This is a compound of *carbon* (charcoal) the chief constituent of wood, and *oxygen.** In the dark

* These chapters have been written in a simple style, in order to their being readily understood (with the aid of illustrations from the tree,) by the children of a family or school, (70)—plain Saxon has been adhered to wherever practicable, and technical terms avoided. But Carbonic Acid and Oxygen, if not generally known by name, are so common and so important that it is unavoidable to mention them by their only proper names. They are both invisible gases. The former is the heavy poisonous air, which is found at the bottoms of wells and caverns, where it has no outlet for escape, and in close rooms where charcoal (carbon) has been burning. It is evolved copiously from fermenting liquors, and from lime-kilns, and other fires. Although inadmissible into the lungs, it may be swallowed without injury to the stomach. It has an acid taste, and mixed with water it forms soda-water—with cider or wine, champagne. It is continually expelled from the lungs, of which interesting evidence may be readily obtained—thus: It (carbonic acid) combined with quick-lime, forms solid lime stone. Now if the breath be emitted a few times into a tumbler of clear fresh lime-water, the union of the carbonic acid of the breath and the lime in the water will be seen, and there will be a sediment of stone. In limestone countries, carbonic acid, as it bubbles up through the water, forms the common lime gravel found so profusely near many springs and streams. The ingenuity of man will no doubt develope new and useful properties of this agent. *Oxygen* is the most universal and important element in nature. As Carbonic Acid immediately quenches flame, so Oxygen supports it. Substances, otherwise inflammable, burn in it with the greatest rapidity and intense brilliance. It is found in a uniform proportion in the air we breathe, and it is the element *for which* we breathe (18): nearly half a pint of oxygen is consumed at every inhalation. If we are obliged to breathe air deficient in oxygen, life is endangered;—if there is an excess of oxygen the "laughing gas" is formed, well known for its exciting properties;—with a larger proportion of oxygen the air would be identically aqua fortis. Were the air deprived of its other ingredient (nitrogen) so as to be wholly oxygen, the earth would be immediately wrapped in a sheet of intense flame. The word 'oxygen' means to make sharp or acidify. It is oxygen that ripens fruits, rusts metals, sours vinegar, and promotes decay generally. It is to let oxygen into the soil that we plough, dig, cultivate and harrow, in order to expose a large extent of fresh surface to the action of this powerful agent. It is by admitting a greater volume of oxygen to the lungs, that yawning, laughing, or rapid breathing dispels drowsiness or lassitude. So active and universal an agent should be as familiarly known as common water.

the sap passes out at the leaves unchanged, but in the light, and according to its intensity, the leaves separate the carbon from the

oxygen. The former is retained as the chief ingredient in the prepared, wood-forming sap, and the oxygen is given out. (18) If a leaf be held under water in the sunshine, bubbles of gas will be seen to ascend from it, which on examination are found to be pure oxygen. This action of the leaves was first discovered by the celebrated Dr. Priestly, Northumberland, Pa.

21. The pores of leaves, though chiefly means of perspiration and evacuation, appear sometimes to *admit* sustenance from the atmosphere. Every gardener has observed how necessary it is that leaves should be washed occasionally, and that common water is not so favorable as the ammoniacal rain. Branches of a vine extending over a heap of manure are much more vigorous than others. In this case the gases escaping from the manure seem to contribute to the growth of the plant through the medium of the leaves. Many plants (air plants) grow to a large size without any roots or any contact with the soil. In some plants, as the prickly pear, the leaf and stem are the same: indeed in all plants, the bark seems to perform the functions of leaves to some degree. But in very dry hot weather, the leaves alone are able to bear the scorching rays of the sun, (12) being cooled by their free perspiration. (35)

22. Leaves, like the delicately organized lungs of animals, are, as we might expect, especially subject to disease. Exceedingly minute plants sometimes establish themselves upon them as moss does on the bark, or fungus on decaying wood, or vermin upon impoverished animals. These spread with astonishing rapidity, and of course impair the functions of the leaves. Though distinctly observable with a microscope, the naked eye perceives only a discoloration or a dust, to which are given the names of blight, rust, mildew, &c.

THE FLOWERS.

23. On examining the structure of an apple blossom, or that of any other common fruit, (see Strawberry,) we find it composed of certain parts, to which technical names are given convenient to use. The outer green leafy case of the flower, (remaining on some fruits as the apple and currant, but falling from others as the plum and cherry,) is called the *Calyx*; the delicate, colored, conspicuous, inner leaves, are the *Corolla*. In the centre is a slender tube, (one or more,) called the pistil, and around the pistils are the usually numerous stamens, each bearing an anther or box of mostly yellowish fertilizing dust, called *pollen*. The stamens and pistils are called the *sexes* of the flower. The pollen, when mature, is shed

upon the *stigma*, (the knobbed point of the pistil,) and passing down to the *germ*, there generates the seed. Bees and other insects often carry the pollen of one flower to the pistils of another, and thus *mix* the varieties; the same effect is sometimes produced with pollen wafted by the wind.

The distinguished Thomas Andrew Knight, to whose memory all lovers of good fruit owe a tribute of gratitude, originated a great number of the most excellent fruits we now possess, by artificially impregnating the pistil of one variety with the pollen dust of another possessing qualities which it was desired to impart. Great numbers of new flowers and fruits are now annually produced in this manner. Constitutional diseases, as the Yellows, are communicated by the pollen dust. It is remarkable and fortunate that this dust can be kept, if carefully sealed, for a long time; and even carried great distances, without loss of its fructifying powers. In this way, the pollen of an early variety of the grape or other fruit can be retained to impregnate a later one.

In many trees, as the Mulberry, Buffalo Berry, Osage Orange, &c. the staminate and pistillate blossoms are on different plants. These are called diœcious kinds, and solitary trees are barren. (See Strawberry.)

24. The buds which produce flowers, are usually more swollen and turgid than leaf or wood-buds, and in the apple, pear, cherry, plum, gooseberry and currant, they are generally situated on short spurs (62 fig): some varieties of apple and pear however, bear on the end of last year's shoots, and many plums, with the morello cherries, and peach, apricot, and nectarine trees, bear on the young last year's wood: the blossom buds of these are not readily distinguishable from wood buds; the latter are usually more pointed, and are frequently the middle of three, having a blossom bud on each side, the whole forming a triple bud. In the grape, raspberry, chestnut, walnut, hickorynut, and mulberry, the blossom is developed from some of the first buds of the same year's growth, and consequently it appears late. In the Filbert, the stamens are in a catkin, as in the walnut or chestnut, and the red pistils form a silk as in Indian corn, but issue from the points of the fruitful buds as early as Feb. or March, and the drooping catkins are formed during the previous season, showing the stamens in March.

25. The theory of the formation of flower buds, is still rather obscure. They do not appear, or if formed, do not become mature or productive, until a certain amount of the rarer elements of growth are imbibed, elaborated, and stored in the plant. Even then, luxuriant growth will defeat productiveness; the necessary store unless abundant, seems to be swept onward into the new and vigorous growth of young wood with the upward current, or down-

wards with the profuse flow of descending sap. Much pruning or trimming induces a fresh growth of leafy shoots, and as those which would first form blossom-buds, (the oldest and lowest shoots) are removed, the fruitfulness of the tree is thereby retarded. (57.)

If a branch be *ringed*,* the descent of sap being prevented, it accumulates, and forms fruitful buds. The same effect often follows grafting, the sap being checked in its descent at the wounded part. Occasional pruning of the roots, bending the limbs, stopping the shoots, (62) transplanting, dwarfing, and the use of earthy manures induce fruitfulness.

There is a great difference in the natural habits of varieties, owing probably to a difference in the digestive organs,—the leaves. Some fruits, for instance the Summer Rose, Codlin and Queen apples, the Julienne, St. John's, and Bartlett pears, always bear when quite young, while others persist in a vigorous growth of naked shoots for some years before they bear. In general, the former class is of more slender growth than the latter, and it is in all cases very injurious to a tree to bear much fruit until it is well established and has laid up a suitable supply of nutriment.

THE FRUIT.

26. The fruit has an organization which enables it to secrete those peculiar and rare compounds of the sap, which are adapted to form the seed and its envelopes. To do this, it must be aided by the leaves. If they drop off during summer, as we sometimes see in cases of leaf-blight, the fruit remains stationary. If new leaves are soon formed, the fruit proceeds in growth simultaneously with them, ripening late.

27. Exposure to sunlight is as necessary for the fruit as for the leaves, and it is not uncommon to find fruit, as pears or peaches, of the most exquisite flavor and fragrance, on a tree which at the same time bears beneath thick screens of leaves, fruit that is insipid or uneatable.

Some fruits, as the grape, although they do not bear to be exposed to the blaze of the summer sun entirely unshaded, are perfect only in warm dry seasons. Wet and cold summers are inimical to nearly all fruits. Stone fruits rot, winter fruits decay, the

* Ringing is the removal of a narrow ring of bark about one-sixth of an inch wide at the base of a sterile shoot of two, three or four year's growth. It is done in the spring, and often produces a most remarkable increase in the quantity and size of the fruit. But the parts below are starved and injured by the detention of the sap.—See Lindley's Theory of Horticulture, Downing & Gray's edition.

richest varieties fail entirely to attain their admirable flavor; all are late in ripening, and unusually acid.

28. The nutriment of the fruit is stored in the wood in previous years, (25) and beyond the amount of this stock they seem to have little resource. If a tree is loaded with young fruits, and half or two-thirds be removed while small, (effected in peach trees by shortening in—60) the remainder will appropriate to themselves the whole stock of nutriment, and will consequently be proportionably larger and finer. The first fruit on a very young tree is mostly imperfect, (25) and is sometimes so inferior in size and quality, as to bring on itself a hasty condemnation. (see *Black Eagle Cherry.*)

29. The art of preserving fresh fruit, so as to retain or improve its flavor and preclude decay, is less understood than other departments of culture. There is a difference in the nature of varieties which prevent the uniform success of any general process. Some fruits are better kept dry, so as to shrivel; others lose their flavor. A uniform and cool temperature is necessary. Winter fruit placed in tight close vessels, to exclude the access of oxygen, and buried in earth to preserve low and even temperature, keeps in great perfection.

Ripe fruit, placed in tight canisters and soldered up carefully, then boiled until no more air (*see oxygen*, 20) bubbles through the drop of water placed on the small air hole as a test, is said to keep without the least change or decomposition. The air hole must of course be immediately closed with solder, and the sufficient tightness of the whole is indicated by the ends being pressed inwards when the contents are cool.

Kephart's Patent Preserver, (Flack, Thompson & Co. Phila.) is a room beneath or within an ice-house. The temperature is perfectly uniform,—33°—34°, and the air is kept dry by the condensation of existing moisture on the cold waterproof partition and floor. "We have eaten fruits of a transcient nature, preserved in this way for 6 or 8 months." *Cole.* This is without doubt a most valuable invention, applicable to many useful purposes, and combined with the deprivation of air, affords an apparently feasable and certain method of preserving the sweet juices of fruits (syrups or wines) unchanged by fermentation.

SOIL.

30. **Fruits,** seeming to retain somewhat of their primeval spontaneity, are much less discriminating in respect to soils, than the more indispensible *grains*, which demand for their production unremitted yearly toil. Even where grain cannot be raised with profit, a variety of fruits flourish with little care; and where grain yields a good return, most of the fruits will do even better, exacting less attention, and rewarding the care given more bountifully.

31. Many qualities must combine to form a soil congenial to vegetable growth, and as some of the most important are not discoverable on bare inspection, nothing short of practical trial or chemical analysis will detect them. Those who have a choice of location, can best decide where to plant by observing the success of trees growing in various situations around them. But in general, it is necessary to adapt the soil to the tree rather than the tree to the soil: the following observations, applying to fruit trees in general, will then be useful. Preferences of particular kinds have been already noted.

32. The SOIL must be such as allows the free admission of air and percolation of water, yet is not liable to become excessively dry; it must be absorbent. In situations where water stands and stagnates, it is useless to plant; the indispensable oxygen (20) is not admitted into the soil to solve and prepare nutriment, the plant becomes mossy, assumes a sickly starved appearance, and eventually dies. (35)

Sometimes the surface soil is tolerably dry, but the subsoil may be cold and wet; in this case the tap roots seem to bring up an unwholesome sap, which poisons the tree.

It is well known how slowly wood decays if it is constantly immersed in water; so the vegetable matter in a soil that is continually wet, becomes of a darker color, but its texture is little altered, and it does not become food for plants until the water is drained off, and lime? or ashes is supplied to induce decay; then it becomes the most fertile of soils.

In many retentive soils, the breaking up or loosening of the subsoil to a depth of 15 or 18 inches, is a sufficient melioration; but where there is much stagnant water, deep covered drains are necessary.

33. The effect of preparing a bed of mellow soil for the roots of plants, (9) by digging or ploughing, is well known. It is as useful for trees as for herbaceous plants; and for them to reap the full advantage of the practice, the soil should be loosened up to twice or three times the usual depth. There is no case of complaint recorded, of labor lost in the deep working of a *friable* soil; all who have tried it, speak in the highest terms of its benefits. It is generally necessary to trench the whole area, especially in heavy soils, where solitary deep holes would retain too much water. To invigorate the growth of established trees, trench round the extremities of the roots before April. (37) The abundance of available (32) nutriment supplied by such a bed of soil, the facility with which it is reached by the roots, (9) the free admission and circulation of air, and the regular supply of moisture (11) in dry or wet weather, readily account for the superior growth of trees thus situated.

34. Where it is impracticable to work the soil, from the occurrence of rocks or other obstacles, it is sometimes possible to increase the depth of mould by adding to it, but this is often as needless as inconvenient. Rocky soils are usually warm, (35) well drained, and rich in mineral manures, (potash, &c. 39) and trees flourish in them when the surface is covered with stones or underlaid with rocks. But it is indispensably necessary at first that the surface be mulched (37) until the roots penetrate the crevices of the rocks. The surface should be kept well grazed off by hogs or poultry, (68) not suffered to grow up for mowing, (36) and should be manured by a top dressing of compost. If yard manure be used alone, little of its virtues will reach the roots of the trees, but if composted with mould (39) its virtues will be saved from evaporation by wind or sun, and will *gradually* leach down to the roots.

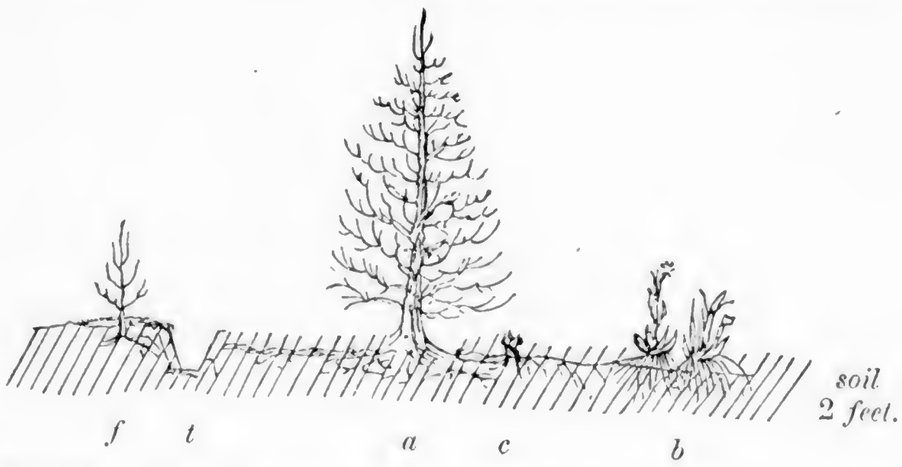
Where a wet soil cannot be drained, the hardiest kinds of trees (7. note) may be grown, by setting the roots *on* the raised surface, and covering them and the surface for some distance around with a mound of earth.

35. If the *average warmth* of the soil is not equal to the mean heat of the atmosphere, it is neither well adapted to fruit or grains. In the limestone vallies East of the Allegheny Mountains, the cavernous limestone rocks form natural drains, allow the upward circulation of warm vapors from a depth, and where the loose strata of rocks approach the surface, the effect of these in promoting growth during chilly weather is very obvious. But West of the Mountain, where the solid strata retain nearly their horizontal position, no warm effluvia can arise to afford bottom heat. Professor Lindley says in his admirable Theory of Horticulture, (see p. 104) "I quite agree in believing that it is the temperature and moisture of the soil, much more than its mineralogical character, that determine its influence upon vegetation." This is an important statement, when we consider the immense value which attaches to the mechanical texture of the soil, and to the amount of food contained in it.

Where there is a deficiency of warmth in the soil, means can be

used to retain and increase it. And first, the superfluous water should be drained off to a depth of three feet (32.) The surface should be firm and kept covered with a short grass, leaves, straw, or any coating that will prevent the radiation of heat, as clothing prevents radiation from the body. Water should not be applied to the surface in *dry weather*; if necessary, it should be poured beneath a mulching or a covering of an inch or two of removed soil. Any one who has remarked how rapidly the hand loses its warmth if held while wet in drying air, can easily comprehend the chilling effect of rapid evaporation. The soil of a hill or slope is warmer than that of the low level.

36. In all cases, suppression of the natural growth of weeds and grasses is of the greatest importance, and most especially during the first year or two after transplanting. Thousands of young plants die every year from their unformed roots being forced to compete with those of greedy voracious weeds. If weeds are stunted in the top by being cut off or shaded, their roots will be proportionately small and harmless, (*c*) but if the top grows unchecked, (*b*) the roots will penetrate into every minute portion of the soil, and rob the last atom of nutriment from the slower and feebler roots of the trasplanted tree. The same result follows from planting a young tree (*f.*) within reach of an established tree, (as at *a.*) roots will pass beneath a trench (*t*) or other attempted obstacle, preserving their natural distance from the surface, attracted by the mulching and food placed around the young tree for its support.



A simple general practice for promoting the growth of *young* trees, is to heap round each stem *in the fall* (39) a bushel or two of rich mould or compost; (39) this will keep the young tree steady, will throw off redundant moisture from the roots during winter,

will guard the stem from mice, and during the next summer, being mellow and light, it can be easily stirred with a hoe occasionally to choke and destroy weeds, and to admit air and moisture. The latter is best effected, in soils that bake, by mulching.

37. **Mulching**, is covering the surface around young plants widely enough to protect all the extremities of the roots (6) with a coat of litter, hay, boards, bark, chips, sawdust, shavings, sods, leaves, stones, or any dead matter, in sufficient quantity to choke grass or weeds, preserve moisture, and promote decomposition. (36. 58. 68. figs.) It is indispensable to secure the life of young trees during the first season, if the weather be very dry and the soil thin. In a clayey soil, liable to bake, trees cannot be watered on the surface to any advantage; if mulched, there will be no necessity for watering them.

This practice obviates also the necessity for digging and cutting the roots. In firm soil, nearly every feeding root will be found within from 2 to 8 inches of the surface; (36. fig.) and if the trees are large, every square inch will be penetrated and occupied by the innumerable fibres. If these *must* be ploughed through, it should be done during the season of rest, not later than March, and the furrow should be as shallow as possible. To cut up the roots at the time when they are actively engaged in collecting sap, (3) is to inflict irremediable injury. Many orchards are destroyed by this ruthless destruction of the roots, and by an equally barbarous hacking and hewing of the tops. Orchards in pasture land last longest.

38. If an orchard becomes unfruitful, it is most likely that some particular ingredient is exhausted from the soil. Barn manure is useful for trees, but they may have too much of it, and too little of some of the equally essential earthy elements; this brings us to the important subject of manure.

MANURES.

39. On making a *chemical* examination of the wood of trees, it is found to be composed of certain ingredients, varying in proportion in different kinds. It is well to know what these are, and to make sure of having a sufficient supply of them about the roots of trees. If a sound tree is burned, the water and carbon contained in it are dissipated in the form of vapor and gas, (20) and the little residue of ashes is the whole amount of earthy ingredients which that tree contained; the other ingredients are contained abundantly in air and water. These ashes are scarcely one-twentieth part of the weight of the tree, yet they are all that a kindly soil (35)

positively requires of manure, to produce another such tree. This ash is composed (varying as was said) of about one-fifth potash, one-fifth phosphate of lime, one-sixth lime, one-twentieth magnesia, one-thirtieth soda, one-thirtieth organic matter, and very small proportions of common salt, sulphur, iron, and silex (sand). These ingredients may be applied either in the burned or decayed wood or leaves, (the ash or residuum containing them all properly proportioned,) or they may be obtained and applied separately.

Potash, (ley) is liable to leach away, but is continually supplied by the action of the atmosphere producing decay and disintegration of vegetables, and of elevated or exposed strata of rocks. Along the base of mountains or hills therefore, there is usually a constant supply of this main ingredient.

Phosphate of Lime, is abundant in bones. It forms the strong framework or skeleton of both animals and vegetables. It is not very commonly found in rocks or earthy strata, but is mined in some places. On soil where the straw or stems of plants grows unusually weak and tender, a deficiency of the salt is indicated. Bones dissolved or ground will supply it; (they will benefit trees or vines if applied whole.)

Lime is not only a necessary article of food for plants, but if freely supplied, it has a good effect on the texture of the soil mechanically, and aids in preventing the leach or evaporation of other manures. When lime is burnt in large heaps with coal, advantage should be taken, if the soil be heavy clay, to throw upon the pile, when in full heat, large quantities of the latter. Burnt clay is an excellent application to heavy soils, and permanent in its effects.

Magnesia, usually accompanies lime in limestones. If too abundant, it is deleterious; the lime being too caustic.

Common Salt, (chloride of sodium,) is especially serviceable to gooseberries, quinces and plums. It makes soil more retentive of moisture, adds to the decomposing effect of lime, and destroys insects. It must be used moderately.

Sulphur, is contained in plaster of Paris, a compound of sulphuric acid (oil of vitriol) and lime. Though not active when combined, these constituents seem to be separated by chemical action in the soil, and exert their native decomposing influence. Vegetable matter, as cornstalk, straw, muck, &c. are speedily reduced if strewn with plaster. Plaster requires about 400 times its own bulk of water to dissolve it, hence the advantage of applying it before rains.

Organic Matter, formed by the decay of vegetables, is soon exhausted from the soil, unless circumstances have favored its extraordinary collection as in rich alluvions, swamps, &c. (32) Hence

the propriety of using straw, hay, leaves, muck, chip-dirt, &c. freely as manure, and providing also for their timely decomposition. This is hastened by composting, (34) or by applying them *near* the surface, (or air,) and using plaster, potash, &c. While fermenting or decaying they should not be in contact with the roots of plants; in such a condition they are as injurious to plants as alcohol is to animals.

Barn Yard Manure, is rich in organic matter, and contains much of the other elements, making with little preparation, the richest food of plants.

To induce fruitfulness apply manure early in autumn. (16) Spring manuring induces a sudden growth of wood, (25) which does not properly mature before winter.

Chemical analyses and observations have done much, but the subject of manures is involved in so many influences, that it cannot be said yet to be practically reduced to a science.

40. Manures should be mixed with the soil as widely as the roots extend. We sometimes see a collar of ashes or other manure applied round the base of the stem of a large tree: were the arms of a man extended immoveably as are the roots of trees, and his hunger mocked by tieing food round his neck, he would be in a position to understand and sympathise with the condition of trees so circumstanced.

When a tree is properly fed with proper manure, care must be used that hungry weeds and grasses do not appropriate it (36) and leave the tree to perish in the midst of plenty, as the wretched peasants of Ireland starve on one of the most fertile islands in the world.

SITUATION.

41. As a general rule, rich bottom lands are least adapted to the successful culture of fruits (17): the fertile slopes of dry hills are better, and of these the Northren, Western, or South Western aspects are preferable. On the South and East occasional frosts are too rapidly thawed, and consequently more destructive. (7) Land elevated considerably is favorable, no matter what may be the aspect, because the cold air, which seeks a level as water does, settles into the low parts of the country like an immense invisible river or lake. But if a high wind occurs while the temperature is low, the frosty air is driven up the eminences, and the destruction is general. Such was the case in this section in the spring of 1849, but it is quite unusual. Of all situations, one at the base of a

mountain, sufficiently elevated to escape the cold air of the valley, and close enough to the mountain to benefit by its shelter and radiation, is the most certain. The summit of the mountain is colder than the base, equalling a difference of 50 or 100 miles or more of latitude, and hollows on the mountain, and gaps passing from these, into which the cold air presses, are coldest of all. But near large rivers and lakes, or large springs, the temperature is modified by the effect of fogs and clouds preventing radiation (35) and tender fruits succeed well. In towns many fruits succeed better than in the surrounding country, owing to shelter from violent atmospheric changes.

42. The blossoms of trees will sometimes bear a smart frost without injury, if the morning is cloudy, and the tree is defended from sudden thaw by a Western aspect. The idea that frost is most injurious to buds when wet with dew is not fully correct. If the buds are full of liquid sap, and *this* becomes frozen, the germs are disrupted and destroyed (17); a consequence not often resulting from the formation of ice on the *outside* of the wood. On the contrary, trees are often protected by fog or mist, as has been remarked.

The covering of the frozen ground with litter to retard blossoming is useless, unless the top is covered, as growth commences in the branches. (3) Trees from a district where the seasons are short, bloom later than natives, and thus often escape. A frost that destroys the crop of one class of fruits (24) may not injure another. Late blossoming fruits as the grape, do not bloom until other fruits are sheltered by leaves. A garden which contains various kinds of fruit will yield a supply of some of them in the most disastrous seasons.

The occasional destruction of a crop by frost gives the trees a season of rest and an accumulation of strength, (28) and after a whole year's deprivation of any particular fruit, its return is welcomed with relish and desire.

SELECTION OF TREES.

43. In order to procure the best assortment, that a nursery can furnish, trees should be ordered or selected before the fall "raising," when the stock is entire. In the spring, nurseries of repute are much culled, and trees cannot be "made to order at the shortest notice." Choose trees with clean healthy bark, well ripened plump shoots, (16) a stout stem, not trimmed bare of spurs or short side shoots, (58) and roots fresh looking and numerous. The roots

should be well wrapped for transportation to any distance. If mudded (54) and tightly packed in a material not liable to mould or decay, (39) as moss, they will carry with perfect safety for thousands of miles. The writer has frequently received trees from Europe and from distant parts of this country, and without ever failing of success, even when delayed for weeks; but care in such cases is essential.

44. If the buds are numerous and prominent (24) it indicates a sort that bears early. Long, clean, smooth shoots (25) mark kinds that are inclined to a luxuriant growth of barren wood, or large coarse fruit, deficient in flavor and liable to fall or rot. Cobbett says with his customary shrewdness: "In choosing trees, gentlemen are too apt to be captivated with the appearance of the plant, but as ill weeds grow apace, so it is with fruit trees. A Catharine or a Magdalen peach will be of twice the size in the same space of time as a French Mignonne or a Montauban; and indeed it may be laid down as a general rule that in proportion as the fruit excels, the texture of the tree is puny and its growth slow; it is the same through almost every thing in nature, and it would be strange indeed if fruit trees formed an exception."

Stunted trees should not be chosen for the *orchard*, they may bear early, but will not be permanent, (13) no after treatment can eradicate a tendency to decay.

As to kinds of *fruit*, of course none but the very best should be chosen, but in determining what *is best*, many things must be considered. In planting for market purposes, popular showy kinds must be chosen, of the most productive and hardy habit. But for his own family use, the planter will choose many delicious sorts that are never offered in markets, being too small or too tender. not bearing carriage well, or their fine flavor is transient, and they must be taken fresh from the tree.

It is unsafe to buy trees offered for market sale by irresponsible venders, as it is often impossible to detect the character and condition of a plant by inspection, and if the tree grows, it often proves worthless, after occupying room, creating hope, and receiving care, for years. (See Peach.)

ORCHARD ARRANGEMENT.

45. Much depends on the character of the surface, soil, exposure, area, situation of roads and buildings, and other contingencies. The following notes may assist.

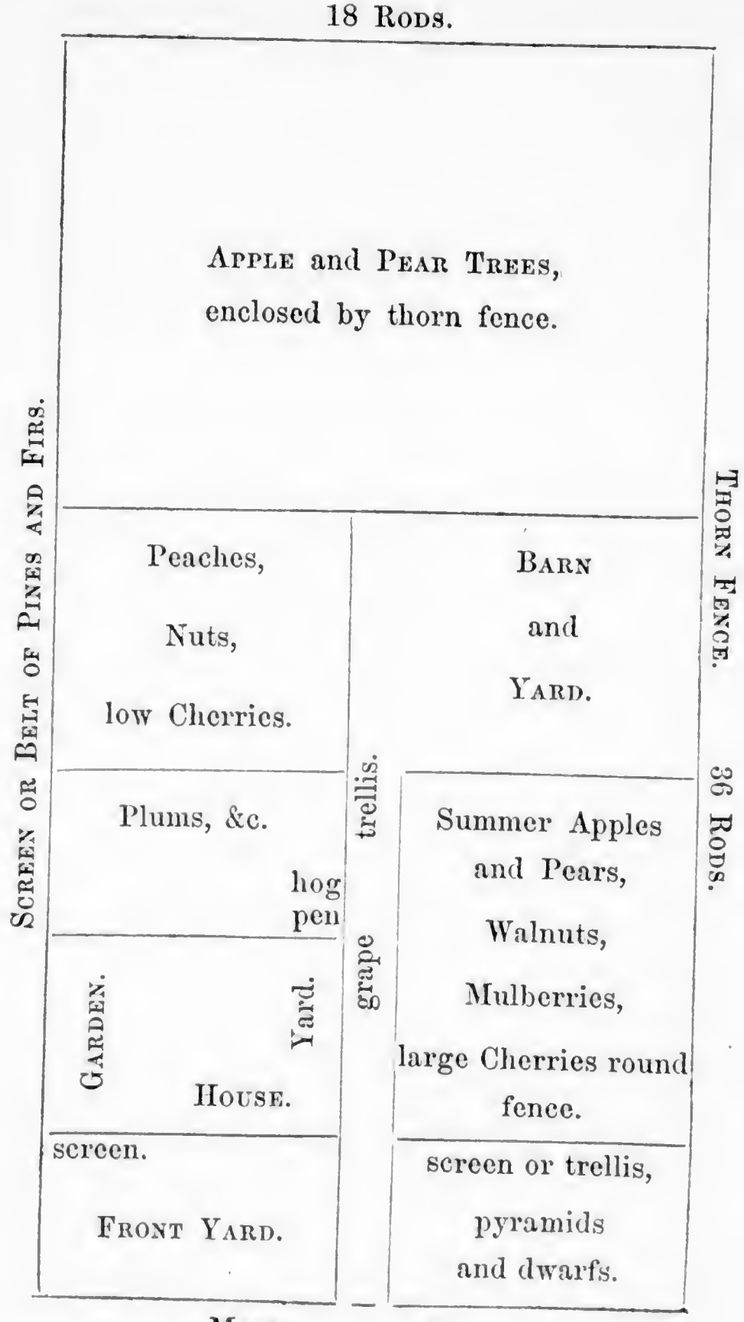
46. Cherry trees should occupy dry ground, a hill is to be preferred. They should be near the buildings and in one grove or range, as they will be less liable to be destroyed by birds, and will make a finer appearance. Plant those of diminutive habit separately. (36. fig.) Distance apart, 10 to 20 feet. The same remarks as to soil apply to peach trees. Cherry trees look well, and should be nearest the front.

47. Plum, Apricot, and Nectarine trees should occupy an enclosed yard open to small animals, as pigs and poultry. This is a cheap and successful mode of culture applicable to these fruits. Without any expense or annual labor on the part of the proprietor, the weeds are kept down, the soil is worked and manured in spring, the surface made firm, and insects destroyed or driven off. The trees should be planted close and kept low, 12 to 15 feet apart.

48. Pear trees should occupy rising ground; if there is a firm substratum of rocks or hard pan, so much the better; providing against redundant water or excessive drought. In low, rich, deep soils, they are liable to blight; the roots should not penetrate deeply, nor the trees grow with excessive luxuriance. English gardeners sometimes lay pavement under the roots. Some very fruitful and longlived trees here, stand on a mountain declivity, where the roots are continually immersed in water. But this water is flowing through the soil; being kept, with the roots, near the surface by an impervious subsoil. Plant 20 to 30 feet apart.

49. In planting apple trees, it is convenient to have the earliest sorts nearest to the house, the autumn apples together, and all the trees of each kind of winter apples together. Winter apples and pears can be grown on land otherwise profitless, thriving well on rocky hills or along fences, roadsides, &c.

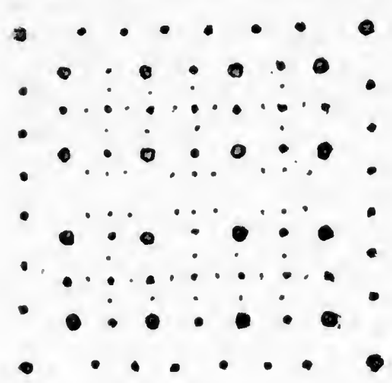
50. The smaller fruits should occupy a separate compartment. Plant dwarf trees 6 to 8 feet apart; pyramids 10 to 12; raspberries 3 feet from hill to hill in the row; currants, gooseberries, and rhubarb, 3 to 4 feet. The latter, though not a fruit, is of similar use, affording a very agreeable and healthful material for pies and sauce, peculiarly valuable for its earliness and especially desirable in seasons when fruit is scarce. The Early Scarlet is in use early in April, and is easily forced earlier—the Victoria has immense stalks and a different flavor; it requires soil of treble depth, and ample room. Every fall the Rhubarb bed should be covered with stable



manure; also, use soapsuds and lime. Without such culture it will be strong and distasteful in flavor. Suppress seed-stalks, or the roots will become exhausted; always leave leaves to continue the growth. (18)

Place Quince trees in a moist situation; they will grow well where waste water flows. Grape Vines in the warmest exposure that the place affords. Nuts, Mulberries, &c. in any spare place.

51. Where there is but a limited space to be devoted to fruits, all kinds may be planted within a small enclosure, in something like this order. Plant apple trees and heart cherries at 2 rods apart (largest dots, see fig.); fill the interval with rows of plums, peaches, apricots, and the weaker pears & cherries, or pyramids, at one rod apart. Between these, (smallest dots,) set dwarf trees, currants, raspberries, gooseberries, quinces, &c. Occupy the fence with a grape trellis, occasional standard pears, &c. The small trees in this garden will become immediately productive; as they decay, the large standards will occupy the space and continue a supply of fruit. The garden will contain 20 large trees, 50 medium sized, and 50 small plants, besides vines, and will be but 8 rods square. It will be easy to make a good fence round so small an enclosure, and to manure and cultivate it WELL. (69) When the trees are all set out, make a plan of the garden, on a page of an account book, marking the name and place of each tree.



On page 115, is a convenient and liberal arrangement, planned for a farmer's home; the ground fronted to the south. The entire area four acres.

52. Live fences are recommended for orchards. They have the slight disadvantage of requiring a portion of the soil for their growth. Buckthorn is perfectly hardy and makes a dense "wall" of foliage, but has few thorns when young. The native thorn is perhaps the best protection. The Osage Orange is the most beautiful plant, and its thorns most frightful; it is about as hardy as the peach, hardier of course in trimmed hedges than solitary standards. (17) Plants for hedges are best planted in X or lattice form, and should be annually trimmed in early spring or in June, keeking the top narrow, in order to secure thickness in the bottom, and to prevent injury from heavy snows.

For protection from bleak winds, a belt of pines or firs should be planted on the North and West sides. Great care must be used in

planting, that the roots do not become dry; it is best that some of the earth should remain about the roots. Plants previously moved succeed best. (8. 56. 37.)

53. It is mortifying that in a country where property in general is eminently secure, there should be so great a risk of losing the produce of an orchard by ROBBERY. Our laws are imperfect and anomalous on this point—petitions have been read, asking that fruit stealing be made an indictable offence, and laid aside. Popular appetite, instead of popular opinion, seems to frame the law. Do those who would scorn to steal a chicken from the stables, ever reflect, that a man who has planted, protected, manured, cultivated and trained a tree with care and pride and hope, for years, when it at last yields him the expected fruit, can less bear to have that fruit recklessly, and, as is often the case, totally plundered, than to lose sheaves from his field or corn from his garner? See truthful and excellent remarks by DAVID THOMAS, on the *moral education* of youth, in Genesee Farmer, vol. VII. p. p. 22. 264.—Fruit growers as a class are liberal and generous, and the chief object with many is the gratification and entertainment of others. Their labors are highly beneficial and valuable, and should be adequately protected. Deut. XX. 6.—XXIII 24.

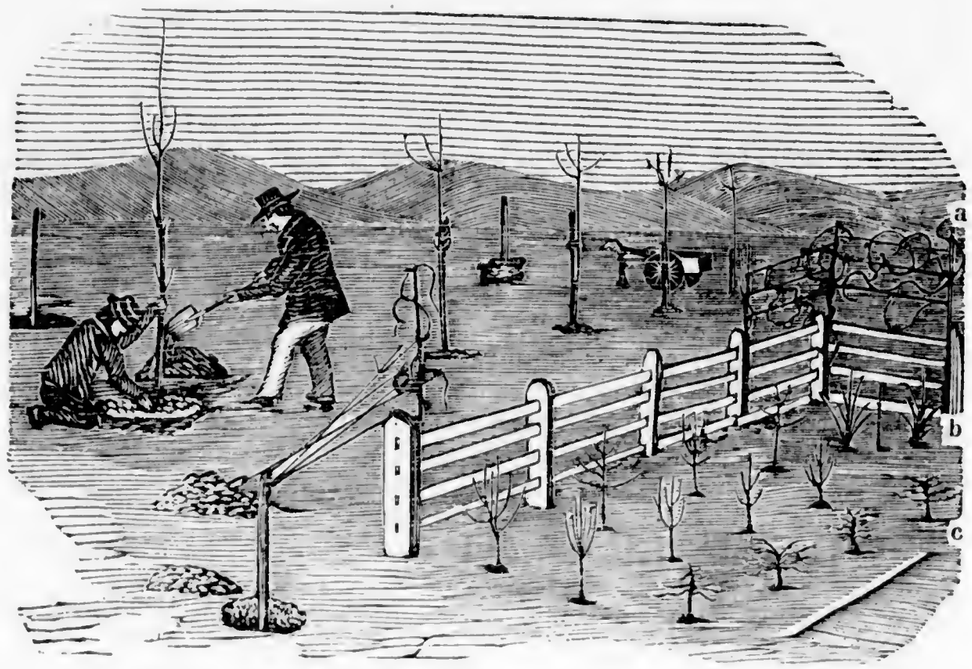
Where Village Horticultural Societies are formed (70), every one is induced to plant and to learn the value of trees and fruit, there is less temptation to plunder, and a common interest checks the practice.

TRANSPLANTING.

54. As to *season*, transplanting can be done either in the autumn soon after the forest leaves fall, or in the spring as soon as danger from frost ceases, and before growth stirs. The *manner* more than the *time* of the operation, and the conditions of the plants and of the weather, determine success.

Some plants, as gooseberries and currants, shed their leaves early, and may be planted before others; trees must not be removed while in leaf; (3) if a few leaves remain on the tree when raised, they should be removed.

It is not necessary to defer raising trees until the time of planting. They may be raised in the fall, and the roots buried until spring, or if raised early in the spring, as it is necessary they should be, planting may be defered until vegetation commences. Both operations should be performed in cloudy damp mild weather, and the roots should not be exposed to the atmosphere any longer than



a.—*Grape.* b.—*Raspberry.* c.—*Dwarf border.*

can possibly be avoided. (7) They may be dipped into mud so as to be coated with it, or buried in the soil.

55. To remove trees of any size without a degree of violence, is unavoidable; and it is almost impossible to dig up a tree eight feet high, without cutting or breaking off the ends of the roots. These should be pared smoothly (8) and the side shoots or top proportionately shortened, so that there may be at first fewer leaves to draw upon the wounded roots and shorter distance for the sap to ascend; the tree will eventually make a stronger and handsomer growth than if left unpruned. (12)

Have a good bed of soil, (33) set the roots at their natural previous depth, (36) fill in carefully (9) seperating the fibres. Avoid violent shaking of the tree. (9)

If it be late in Spring, water freely and immediately *mulch well;* if in Autumn, fill with very fine mould, using no water, and raise a mound of earth over the roots to protect from water or frost during winter. (36)

56. **Size of Trees.**—Nurserymen and gardeners, who cultivate trees as farmers do corn, are most successful in getting a vigorous growth from thrifty young trees well set with shoots and roots; they prefer them to older and taller trees, (12. 55.) and especially to such

as have a weak and naked stem.* (44) But in common practice tall trees are preferred for orchards, as more out of the reach of cattle, (68) and apparently nearer bearing. Large plum and apple trees may be removed successfully when ready to bear; pear, cherry, peach, apricot, and grape vines, are apt to fail if large. But the risk is greatly lessened if the trees are prepared a year previous, by digging a trench round the roots and cutting them off with the tap roots. Fill in the soil, and after a year's growth of fibrous roots, the whole may be lifted out. If the tree is very large, tie a rail to the stem to lift by. A successful variation of this process, is to make the trench during winter and leave it open until the ball of roots becomes frozen, then lift the whole, without waiting till next season. This is a sure way of removing large evergreens.

PRUNING AND TRAINING.

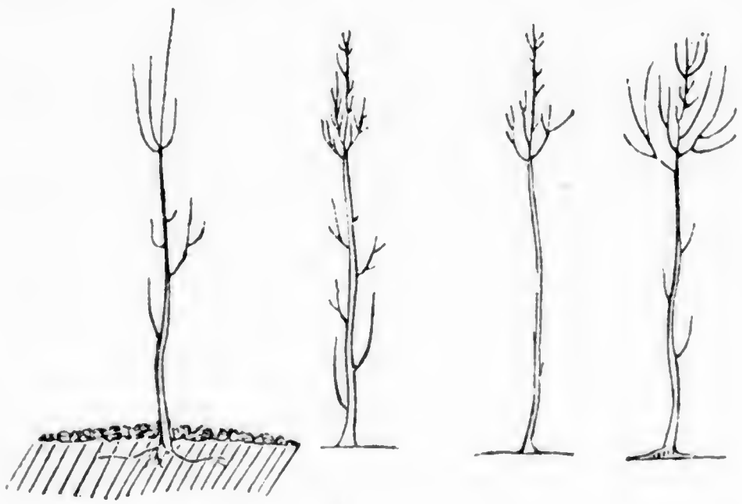
57. THE objects of pruning are different, and this renders it difficult to lay down a system, that can be understood without the aid of practice and observation. Sometimes we wish only to improve the shape of a tree, or to give it a proper form,—to strengthen it against the force of storms,—to promote free growth,—or to check growth, and impart a tendency to bear;—and sometimes we only wish to admit light for the proper ripening of the fruit. The following hints will assist the novice.

* Many persons on seeing their largest plants advancing most in the young orchard, mistake the reason. They are apt to attribute it to the greater size of the tree when planted; but the reason of this greater size is the luxuriant *nature of the variety.* (44) There is an immense difference between varieties in this respect. Many most valuable kinds *never* become large, and their early growth is extremely slow.

"It is a maxim equally well settled, both among theorists and the best practical men, that health, immediate vigour, and duration, are all greatly promoted by transplanting fruit trees of small size—from three to six or seven feet. —We are fully aware with what impatience the beginner, or a person who knows little of the culture of trees, looks upon trees of this size—one who is eager to plant an orchard, and stock a garden with large trees, thinking to *gather a crop the next year!* This latter may indeed be done, but the transplanting so effects the tree, that its first scanty crop is followed by a long season of rest and feeble growth; while the plantation of young trees is making wood rapidly, and soon comes into a healthy and long-continued state of productiveness.'—Has not the reader observed some of these victim monsters, drooping, pining, and decaying among their thrifty young neighbors?—"Gardeners abroad select maiden plants of choice, which they can train with ease into any form, and this is truly the preferable size for removal. * * * But we are an impatient people, and it is not till after another century of trial and experience, that cultivators generally in this country will become aware of the truth of this fact." *Downing*—p. 46.

58. In orchards where the plough is to be used, it is necessary to trim the trees up so high as to admit a man or horse under the branches. But this is done at the expense of the tree, (12) and the stem should by no means be trimmed up higher than is just necessary. And until the top becomes large enough to shade the stem, it is best to let some side shoots grow out from the stem, at least on the south side. They will increase the vigour of the roots, and keep the bark shaded; but to keep them in check and to avoid a large wound at their ultimate removal, they must be annually cut in. (see fig.) If practicable to leave them uncut, they will be the first to form fruit spurs. (25)

Every leaf that is emitted from any part of the tree, must be allowed during the first year. (19)



a newly planted standard apple tree. *b* first year's growth. *c* pruned. second year's growth.

After one year's growth, and in the fall or early spring, the tree should be reduced from the form (*b*) which shows its first yearth's growth, to the form (*c*) where redundant shoots are cut off. The rule for doing this, should be to leave a tier of three branches at a man's height from the ground—to continue the main central stem perpendicularly, not allowing it to fork; and to arrange for another tier of 3 branches at such height above the first (about 2 feet) as will allow a man easily to climb into the tree when fully grown. No permanent shoots should be suffered between these tiers, and the shoots on the lower tier should be well thinned, removing all that grow inward.

This system will not only be easy to follow, but will give a handsome and uniform figure to the trees; and, what is most beneficial, it will obviate any future necessity for hacking off large limbs. (63) To save the annual cutting, *rub off*, as soon as the buds are *fairly opened*, all that are shooting out into unnecessary branches, avoiding those which form fruit spurs. (62) This will render it almost entirely unnecessary to wound the tree with a knife, and will throw the whole vigour of growth into the branches which are to be retained: it is also easier.

The beauty and thrift of trees thus managed and cultivated, will be a constant source of gratification.

It must be observed, that if any shoots extend to an immoderate length without side branches, so as to become slender and pendant or flexible, (which is the habit of some varieties) they should be shortened one half or more. Otherwise they will be unable to carry fruit without breaking or bending to the ground: one apple, or pear, or peach, or plum, at the extremity of such a branch, will cause more stress in a storm, than ten at one-tenth of the distance from the stem. The same principles will guide the training of an orchard, when it is not intended or not practicable to plough round the trees. (34) But the tiers of branches can then be formed much lower. (12)

This pruning to promote growth and form, is sometimes called trimming or training, to distinguish it from the next described system, and it is usually done in March, but some prefer June, especially for stone fruits, as the wounds sooner heal over, and the sap being in full flow, passes on without throwing out troublesome sprouts and suckers. Cole strongly recommends September or October. Any season will answer for the removal of small shoots, advoiding interference with the commencement of growth (4) in May and early in June.

59. To **Promote Fruitfulness.**—In Europe, the greatest attention is given to this branch of culture, but in this sunnier climate we are fortunately exempt from the necessity of laboring through intricate rules, or even, in the most of cases, from interfering at all with Nature. A careful study and observation of the following directions, *at the tree*, will soon enable a novice in the art to use the knife intelligently.

In section 24, those kinds which fruit on spurs issuing from the *old wood*, are distinguished from kinds bearing on last year's or on the *present year's growth*. Of the former, we should of course *retain* the old wood, while from the latter we cut it out as much as we can, in order to promote the issue of new shoots. Plants disposed to sprout or sucker as the gooseberry, currant, filbert, quince,

peach, &c. are best pruned to a *single stem* for the convenience of keeping away sprouts, weeds and insects.

60. The fruitfulness and health of the *peach*, *apricot*, &c. are greatly promoted by an annual shortening in of the branches. (58)

Tree, annually shortened in.

If a young shoot of a bearing peach tree is examined while in blossom, it will be seen that nearly all the buds along the sides of the shoot are mere blossom buds, and that the terminal shoot is usually the only one which forms wood for future bearing. The consequence of this annual growth at the *end* of the shoots, is the production in a few years of lean long naked branches, (see fig.) which of course cannot either nourish or carry fruit of any size; (58) and from want of shade and sap, soon dry up and die. An annual clipping of the growth to one half its length, causes a profuse growth of compact, leafy, stout branches, which are competent to bear full sized and juicy fruit. A large bill or blade, fastened on a long handle, is a convenient instrument for dispatching this necessary work on very large trees; but young trees can be dressed with a large knife, having the aid of a light step ladder. If the shoots, in two or three years, become too numerous, it will be well to thin out some of the weakest, taking with them of course, as much of the old and useless wood as is practicable. (See *Genesee Farmer*, for 1850, *Mr. Barry's Department.*)

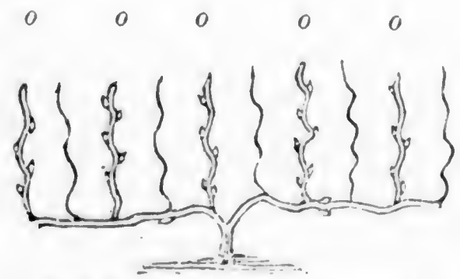
61. In pruning the grape vine and raspberry (24) with a view to rendering them prolific of fine fruit, we must every season encourage the growth of strong *new canes*. To have *strong* canes, which is necessary to fruitfulness, part of the shoots that issue in the spring should be rubbed off. (58.) During the first two or three years, only one cane should be allowed free growth. In the figure, (page 123,) *a. b.* is a stout cane in the midst of the third summer's growth. This vine may now be pruned on either one of the two

a
third summer.

principal systems, the *renewal*, or the *spur* system; and it is necessary at this stage, in order to avoid future perplexity, that some one method should be chosen and afterwards adhered to.

SPUR PRUNING, is most convenient where the vine is trained to a high building or lofty trellis. The main stem *a. b.* is retained permanently, and a shoot allowed to grow from each side of it at every 15 or 18 inches of its length, as *f. f. c. c.* The points where these issue are the *spurs*, and every summer a *strong cane* must be encouraged from each spur to fruit next year in place of the old canes *c. c. f. f.* which having been stopped and checked during summer, must be cut back to the spur in fall or early spring. (Nov. or Feb.)

Renewal Training, is best for foreign grapes, and is most convenient of management, being most within reach; it usually yields the largest fruit, which however, being generally less exposed to full sunlight, is sometimes deficient in flavor.



renewal training on low trellis.

To throw a young vine, as *a. b.* into this mode of growth, cut it off close above the arms *f. f.* and from these, at 18 to 30 inches apart, canes should be suffered to grow perpendicularly. These canes having borne fruit, must be cut away, and their places filled next year by substitutes trained up between them, which must also, in their turn, give place to others.

If preferred, instead of renewing the canes, each one (*o. o. o.*) may be spur pruned, as above: they should then stand about three feet apart. This is perhaps the most successful and convenient mode.

Pruning is more essential to the fruitfulness of the vine than of

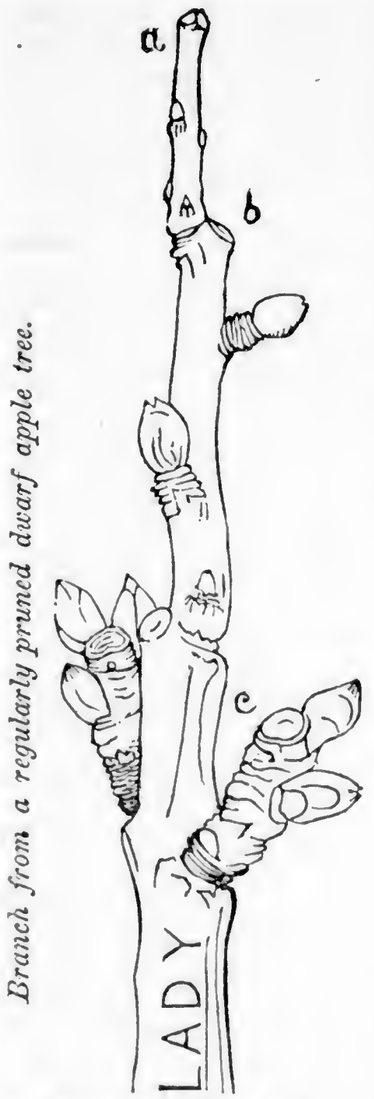
any other fruit, especially of the strong growing sorts. It is common to err in trimming *too* close (18) in summer when the vines look dense, and to cut too sparingly in the winter pruning. Leave only stout plump canes, cutting off the slender ends and all weakly shoots and spare old wood. Usually about two-thirds or more of last year's growth should be removed, unless it has been well pruned or stopped in summer.

62. **Pruning of Dwarf Trees.**—The approved form for these trees is that of a pyramid or cone, (36. fig.) with the base near the surface of the ground. In order to secure a sufficiency of stout horizontal branches, it is usually necessary to head down the newly

a—maiden dwarf, as planted in autumn and banked up for the winter.
b—same plant headed down in spring and the surface levelled and mulched.
c—same plant after one summer's growth.
d—same, pruned in the second spring.
e—second year's growth.

transplanted tree (*a.*) to within a foot of the surface. (*b.*) The buds left will shoot vigorously; one must be trained up for the main stem (leading shoot) of the tree, and a tier of the others allowed to diverge. (*c.*) (58) Next spring it will be found necessary to head down the leading shoot again, (*d.*) in order to secure the emission of another tier of branches (*c*) 6 to 9 inches above the first. See *Hovey's Magazine* No. 186: *Horticulturist* II. 382, &c.—After the tree has acquired the form shown in the figure (*c*) it will need little pruning, but every summer the ends of all protruding shoots on the horizontal branches (excepting the terminal shoot) should be pinched early in June when they are only 2 to 4 inches long. Leave only 2 or 3 buds (leaves) on each. The object is to check growth, preserve form, and produce fruit spurs; if any shoots issue later in the season, they should also be stopped.

The terminal shoots including the central leading shoot, should be stopped (58) just before growth closes in autumn, (about the middle of September,) cutting close above a bud. This is the best season, as the remaining growth being insufficient to throw out more wood will swell and develope the fruit buds. But it may be done in spring, with greater liability, however, to the production of



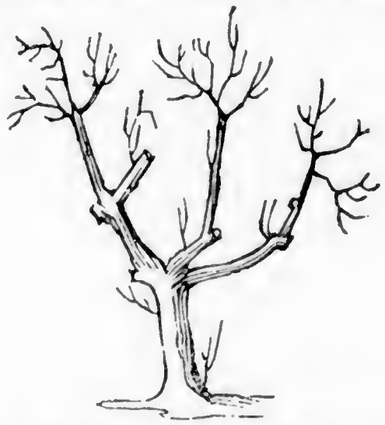
Branch from a regularly pruned dwarf apple tree.

a. present year's growth.
b. last year's, showing two fruit buds.
c. previous year's growth with fruitful spurs.

wood instead of fruit spurs. (see fig. terminal shoot from a Dwarf Lady Apple Tree, annually stopped; with fruit buds on last year's growth, and fruit scars and buds on the spurs of the previous year's wood.)

Over luxuriant growth requires to be checked by root pruning or loosening of the tree, and severing of the tap roots. It may be done at any time from August to March. (17)

63. **Pruning Old Trees.**—After an orchard has been in bearing for some years, it is usually found that the fruit deteriorates in appearance and quality. Means are resorted to for its renovation: dung is applied, (38) the plough



is used, (37) but there is no perceptible improvement. Matters seem to grow rather worse. The puzzled owner concludes that every thing else has failed, and perhaps a good pruning will effect the desired change. Accordingly the dead limbs are hacked off, the others thinned, and the branches well trimmed up with axe and saw, (*fig.*) and confident hopes are entertained, again to meet complete disappointment. *See Thomas' Fruit Culturist, p.* 124.

Now these trees have probably been kept for years on a surfeiting supply of only one sort of food to the exclusion of what they crave; their roots have been cut and torn while actively engaged in collecting what nutriment they could, and finally the top is used

in a similar manner. The already indurated bark (12) is further exposed to wind and sun; gaping wounds and snags invite speedy decay; and the orchardist perceives when too late, the errors of practice into which he has unwittingly fallen.

Trees will survive this treatment for a number of years, and thus prove their inherent vigor of constitution: had they been treated in a manner congenial to their natures, they would have continued to grow, and bear fine fruit for generations. (15)

64. **Renovation of Orchards.**—The first thing to be done is to improve the soil. (33. 39.) Alkaline or earthy manures are most probably deficient and are best supplied by composts, using leaf mould or swamp muck for the base, and decomposing either by the mixture of barnyard manure, plaster and ashes, or of lime *slaked with brine.* The stems should also be cleaned and washed. (13.14.)

A vigorous growth being established, head down in March to sound wood—to the ground, if the stem is in progress of decay. (10) The young shoots should be treated as directed in 58, and may be grafted with good effect, if it is desired to change the fruit. Avoid severe pruning or violent checks of the young growth.

An application must be made to large wounds, to protect the parts undefended by bark from the action of the air. Cut smoothly and close, and cover with grafting wax, paint, tar and sand, or, which is most convenient and permanent, a solution of Shellac in Alcohol (as used by hatters). Keep it in a wide-mouthed bottle, with the brush handle through the cork. It is thus always ready, and is useful for other purposes.

Sometimes all attempts to renew an old orchard fail of remunerating success, and it is always best to set out thrifty young trees on fresh soil, as a certain resource.

About 50 years ago, Mr. Forsythe of the Royal Kensington Gardens, London, attracted so much attention by the wonderful success of his practice in restoring the vigor and fruitfulness of decayed trees, that his fame spread far and wide, and the British Government gave him $20,000 to disclose his method for the common benefit. His 'secret' was the entire eradication of decayed or discolored wood by heading down and excision, and the application of a composition of fine clay tempered with cow-manure, which however does not bear the alternations of our climate, and is much more inconvenient to make and use, than the applications mentioned above.

PROPAGATION.

65. **Stocks, Nurseries.**—Fruit trees are generally originated from seeds. The seedling plants are called Stocks, to distinguish them from the *graft* usually inserted on them. Sometimes others than the natural stocks are preferred, from their having peculiar qualities or disposition of the roots. Thus the pear is apt to blight on stocks which root strongly downwards, and in England it is found necessary to raise the Codlin and the Golden Pippin from cuttings for a similar reason. Foreign stocks are extensively used to induce a dwarfish growth.

The stocks, while young, are liable to many casualties, and are therefore usually raised in nurseries specially adapted to growing them on a large scale with the necessary care. They are sold to nurserymen, who set them out in rows 3 or 4 feet apart, and after one or two year's growth, bud or graft them with the various sorts desired to be grown. It is also the business of the nurseryman to cultivate the trees so as to ensure regular healthy growth, to prune and train so as to secure a stout stem and good form, to extirpate insects and diseases, to select and cultivate the best varieties in suitable proportions, and to introduce and test new and promising sorts. He has occasion to exercise vigilance throughout the season.

The methods of growing cuttings, of pruning, cultivating, and destroying insects have been already given; the processes of grafting and budding are soonest and best learned from observation, but the following rules will aid.

66. **Scions for Grafting** should be cut before the sap begins to flow, (3) at any time between November and March. They should be kept where they will neither become dry, sodden, or mouldy, and where the temperature is so low as not to liquify the sap. (3) They keep well in a box buried in cool earth, or in a cool cellar, or covered with sand, clean loam, moss, or saw-dust.

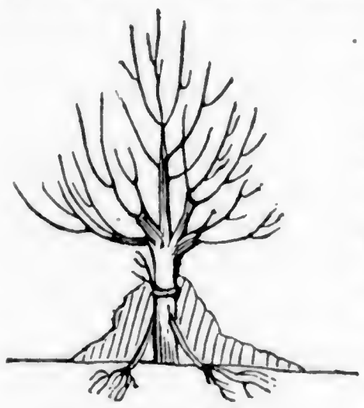
Cherry, plum, apricot and grape scions should be inserted early, before the sap moves, (or late, after the tree is in leaf,) apple and pear grafts succeed later. In inserting the graft, it is quite immaterial in what direction the cut is made, or the graft placed, excepting that the cut shoot be *smooth*, and the line *between the bark and the wood* must coincide at least at some points; the contact must be close, and air must be wholly excluded from the wound, or rather no moisture should escape. A cheap and very good wax to apply by the hand (using warm water to soften it,) is 1 pint linseed oil, 1 lb. beeswax, 6 lbs. resin; (T. G. Yeoman's Receipt,) or one part tallow, two parts beeswax, and four parts resin, well worked together, makes a superior composition. Use as little grease

as possible. If the scions are dry, it is well to extend the wax over them. (11)

67. The process of **Budding** is simple, yet practice gives a manual dexterity, which contributes much to success. As the rather tender buds of the same season are used (19) and the operation is performed in the summer season, it should be done quickly to prevent the drying of the parts. But the scion or stick from which the bud is taken, can be kept several days in a cool damp place, if firm and ripe.

Budding is performed whenever the bark peels freely, and the scions from which the buds are taken, are woody and mature enough to remain sound until the parts heal—between June 20, and the middle of September. Use a sharp knife to cut off the bud and take a little of the wood with it. Push the bud gently down to the lower extremity of the slit in the stock, and tie closely. If the string becomes very tight in ten days or two weeks, open it. Yarn, cotton wick, or lin-wood bark may be used to tie. Plums should be budded early. Thrifty young shoots are best for budding, but sometimes, when the sap is in free full flow, the cambium heals beneath the bud without knitting to it. A close ligature, or pinching the end of the shoot, will prevent this.

The stock has a degree of influence over the graft, modifying the fruit in color, flavor, season, &c. to a slight extent.



a. *b.*

Tree inarched to sustain growth.

A modification of grafting can sometimes be used to save the life of a large bearing tree, when injured by freezing of the sap (17), or girdled at the root by mice, or when the roots are injured by worms. Plant 3 or more stout well rooted stocks (*a. b.*) round the tree close to the stem, and as soon in April as the bark will peel, cut slits as for budding, but *upwards*, and insert the sharpened ends of the stocks, tie and cover with grafting wax and earth. If the roots of the tree are sound, they may be connected with the stem by pieces of split branches sharpened at each end and slipped under the bark. This grafting of two rooted plants together is called inarching. It is the most certain mode of grafting the grape vine.

68. **Mice** often destroy trees in grass land. A compact heap of earth put round the stem in the fall (36), or a smirching of tar, will keep them off. Cattle and sheep should be strictly kept out of the orchard, especially in winter. Cattle break the trees while

frozen, and sheep eat the bark even when smirched with tar, if confined within the enclosure. Only in the autumn, when the bark adheres closely and the leaves are frostbitten, is it safe to admit large animals, and then only for an hour or two at a time. Calves are very mischievous. (34)

69. **Marking Trees.**—It is always desirable to preserve the correct name of the tree, until it shows fruit. A map of the orchard is useful (51), but, in addition, the tree may be marked, and this will often save referring to the draft. With a penknife, sharp at the point, score the initials or the whole name, or number, in the bark in as large letters as is convenient. (62 fig.) If they are an inch long they will not become illegible for several years. This is far easier and safer, than the methods of labelling usually recommended.

70. **Dwarf Trees.**—Most kinds of fruit trees can be made dwarfish and fruitful, either by working on slow growing stocks, or by rigorous root-pruning and summer pinching (62). Large heavy fruits, liable to be blown from standards, can be grown successfully as dwarfs.

In limited grounds, or where it is desired to educate children to a knowledge of the useful and saving art of Horticulture, a miniature orchard of the various sorts of fruits, with a border of shrubs and flowers, and an arbor of vines, will be found one of the most profitable and delightful resources that can be adopted or imagined.

Horticultural Societies.—Not the large institutions alone are beneficial. Little village societies or clubs are most social and agreeable, and, within their sphere, most thoroughly efficient. (53) These societies do not only promote horticultural art, but they engage and associate the minds of neighbours and friends in innocent, healthful and delightful subjects, and the noble and the great, as well as the humble and recluse find in them a recreation peculiarly agreeable and delightful.

"There is in fruits and beautiful flowers, a spell stronger than that which captivates the eye or the palate; they speak of a religion of nature, of an original sentiment of the heart, which no change in our condition, no fall, no dark ages have ever been able wholly to eradicate from the soul of man. This yearning after the lost garden must indeed be strong to force us, almost to war with nature, in order to realize some of those early dreams of our race; those recollections which ever haunt us of a lost Paradise. I thank God, that it does remain strong; for I look upon this beautiful art and all those it involves, as being, next to religion, the great humanizer of the age."

"This is the true *ideal* of Horticulture, this is the good work

which it proposes to accomplish, and which more than any other pursuit, any other art, any other recreation it does accomplish, that of bringing men into daily contact with nature—of giving them pure, simple and rational pleasure; and, most of all, of teaching them to find happiness, not in the excitement of politics, not in the busy tumult of life; but in their country and cottage homes—there to understand and realize the truth of that fine saying of *Burns*,

'To make a happy fire-side chine
For weans and wife,
That's the true pathos, and sublime,
Of human life.'

A. J. Downing."

71. **Profits of Fruit Growing.**—"The pecuniary value of all the products of gardens and orchards is estimated in the Report of the Commissioner of Patents at more than half of the Agricultural total, and very nearly equal to the whole products of Manufacture. The estimate seems large, but is perhaps in reality too small."

It is common for one family in the country, well supplied with apples, to use 200 bushels and upwards in the course of a year, and if every form, in which they are used, be considered, it would be within bounds to estimate the average consumption of families who have daily access to that fruit at over 100 bushels—more than any other item, perhaps more than all put together, certainly so if the consumption of other fruits be added. So natural and urgent is the appetite for fruit, that those who cannot otherwise gratify it, are fain to pay exorbitant rates for rare or tempting specimens.

Very choice specimens of pears, peaches, grape clusters, &c. are frequently sold at 25 cents each, 2 to 6 cents each is the lowest. Mr. Cable's cherry orchard of 100 trees near Cleveland, has averaged in one season, ten dollars per tree.

The original tree of Dabois' Early Golden Apricot produced $45 worth in 1844; $50 worth in 1845; $90 in 1846.

Mr. Dudley of Roxbury, Mass., sold $125 worth of currants from one-eighth of an acre, and $25 worth of cherries from one tree.

N. Wyeth, Esq., Cambridge, sold from one Harvard pear tree $45 worth. At the same place a Dix pear tree produced $46. At Charleston an Imperial Gage tree yielded $50 annually.

Mr. Hill Pennell of Darby, Pa. had $75 worth of grapes from one vine, and $225 worth of early apples from half an acre.

One farmer at Fishkill, N. Y. sold $1,500 worth of plums in one year, and says the few trees near the house that produced them, yield more profit than his farm of 200 acres.

A gardener near Philadelphia gathered at one picking 6 bushels of gooseberries from two rows, and sold them for $24.

A tree of the Lady apple produced $45 worth. Hugh Hatch of Camden, New Jersey, obtained late in spring, at the rate of $46 per tree, for the produce of four trees of Tewksbury Winter Blush.

Strawberries and Raspberries have yielded from $1000 to $1500 per acre, at 25 to 37½ cents per quart.

The profits from the thousands of acres of peach orchards in New Jersey, and the hundreds of acres of strawberry and raspberry near Cincinnati, are frequent subjects of comment.

"Single pear trees in the valley of the Genesee produce more annually without a shilling's worth of labor, than the actual profits of three of the finest farm acres. A healthy bearing pear tree in its prime, produces the interest of from $100 to $1,000." *Barry.*

Five dollars per bushel for apricots and the best early or late plums; three dollars for choice peaches or pears are common prices.

There is, as yet, scarcely an approximation to a full general supply of any description of fruit.

CALENDAR OF OPERATIONS,

IN THE ORCHARD AND FRUIT GARDEN.

IN our inconstant climate, there cannot be any regular procedure; treatment and order must vary with seasons and circumstances. (1) But these tables may serve to remind the unpracticed cultivator of what is necessary to be done, before irrevocable Time silently steals away the opportunity.

JANUARY & FEBRUARY.

Look over the fruit shelves weekly. Bring out winter pears to ripen in a warm room (see Table II.) Shelter young or delicate plants with leaves, moss, evergreen, spray or straw. (35. 41.) Haul out manure, and collect materials for compost. Cut scions for grafting. In mild weather, dig or trench soil, prune, prepare trellis, stakes, &c.

MARCH.

Plant all sorts of trees in mild weather, graft cherries, plums, apricots and grapes first; prune (60), destroy caterpillars' eggs; renew marks. (69)

APRIL.

Finish grafting, pruning, and planting, early in the month. Wash grape vines, gooseberry bushes, &c. Mend and trim fences. Dig and dress beds, when the ground is quite dry enough. Defer unfinished pruning till midsummer.

MAY.

Rub off useless or redundant shoots (58); protect apricot blossoms, if severe frost occurs. Wash the stems of trees; if done now it will be effective against the borer. Plant evergreens. Destroy curculios, caterpillars and peach worms. Spread straw round strawberry plants. Mulch raspberries, gooseberries, black currants, and dwarf trees generally. Suppress weeds.

JUNE.

Destroy aphides as soon as observed. Pinch side shoots on bearing dwarfs. (62) Rub off suckers. Fig trees, pomegranates, &c., may be removed to the open air, or shelter of glass. Plant evergreens. See to Cherry birds. Cut runners from strawberry beds. Destroy weeds. Prune trees and trim hedges (52) late in the month, when the growth is free. (13) Graft or inarch grapes.

JULY.

Bud plums, cherries, &c. Stop forward shoots. (62) Fasten up trailing shoots. Thin out fruits. Wash trees; the peach worm is now hatching from the eggs.

AUGUST.

Dig under old rows of Strawberry plants, or make new beds. Raspberry canes may be cut away when the fruit is gathered from them. Summer prune vines and trees. Root prune too luxuriant dwarfs. (62) Bud all sorts of fruit trees. Preserves, wines, &c., may be made, but require care in keeping. Dry spare fruits, that are liable to decay.

SEPTEMBER.

Water and mulch young strawberry beds; check vigorous shoots or luxuriant growth. (17. 25. 62.) Dry and preserve fruits, make wines, syrups, &c. Apply manures to strengthen trees for next year's fruiting. (28)

OCTOBER.

Gather in, preserve and store abundantly "whatsoever the soul desireth." Apply manure; prune grape vines and fruit trees; this is perhaps the best season in the year. Any trees may be removed and planted early in the month, if deprived of leaves. (54)

NOVEMBER.

This is the best season for planting, and there is time to do it *well.* (43) Protect tender young plants, foreign grapes, raspberries, strawberries, &c. Place fig and other tender trees of small growth in a good cellar, which can be aired in mild weather.

DECEMBER.

Destroy mice, or protect trees from them. Trench garden soil. (33) Apply manure, make ladders, trellises, &c.

GLOSSARY

Of Terms used in Horticultural Description and occurring in this Book.

ABSORBENT; applied to soil—retentive of moisture.

ALBURNUM; the sap-wood, or outer newest annual layers.

ALKALI; a term applied to lime, ashes, &c.—active agents; but united with, as it may be, equally powerful acids, both are neutralized. (see 39,—*Sulphur.*)

BEURRE; (boor-ray, butter,) a buttery pear.

BLEEDING; the flow of sap from a grape vine when pruned in the spring.

CALYX; (23.)

CAMBIUM; the soft mucilage poured beneath the bark in the growing season, and causing it to peel freely. Budding is only successful when the cambium is abundant, as it cements or knits into the bud, forming with it firm wood.

COMPOST; a mixture of manures with mould to prevent leaching, evaporation, or waste, (34) until sufficiently decomposed to apply to the roots of plants. (39)

CONICAL; round, and tapering to a point.

CORDATE; heart-shaped.

CRENATE; applied to leaves when the notches on the edges are rounded or blunt. See Serrate.

DECOMPOSE; to change the composition: a term applied to the food of plants, as "cooking" is to the food of animals.

DIŒCIOUS; (23)

ESPALIER; a tree trained against a flat trellis.

FORCING; the early ripening of fruit under glass by artificial heat.

GAGE; a rather indifferent name for plums, applied mostly to rich luscious sorts of a rounded oblate form.

HEADING DOWN; cutting away a limb or tree down to a certain bud or shoot.

INARCHING; grafting two growing plants by paring and fitting together; the top of one being afterwards cut away.

LEADING SHOOT; the main or central shoot of a tree, which should be kept erect and in advance of the others.

MAIDEN PLANT; a tree of one year's growth from the graft. (56)
MULCHING; (37)
OBLATE; flattened at the ends.
OVATE; Egg-shaped, and largest towards the footstalk.
OBOVATE; reversed ovate, smallest towards the footstalk.
OBTUSE; dull, blunt.
PETIOLE; a leaf stalk.
PIPPIN; an apple, (indefinitely applied.)
PISTILLATE; *see Strawberry.*
PRUNE; applied to freestone culinary plums, of long shape.
PYRAMID; a long cone standing on the base; an approved form for dwarf trees. (36)
PYRIFORM; pear-shaped.
RADICLE; a small fibrous root; a rootlet.
RINGING; (25)
SERRATE; sharp-toothed, differing from *crenate.*
SHORTENING IN; cutting off the ends of last year's shoots one half or less.
SHOULDERS; applied to the small side-bunchlets which compose part of the full bunch in some varieties of grapes.
SPONGIOLE or SPONGELET; the spongy absorbing extremity of the rootlet; the mouths of the tree. (6)
SPORT; seedlings varying from the parent variety are said "to sport."
SPUR; a short stubby shoot, bearing fruit buds. (62)
STAMINATE; *see Strawberry.*
STOCK; a tree or plant to be grafted, or the part below the graft. A stout tree, with numerous low branches (15,) is said to be of "stocky" growth.
STOP; to pinch off the end of summer shoots as in grape vines or pyramids. (62)
SUTURE; the deep line around apricots and other stone fruits.
TAP ROOT; the main central descending root; stopped or diverted in cultivation. (65)
TRELLIS; an upright frame of wire or lath, for training grapes, &c.
WORKING; a term applied to the operations of grafting and budding.

End of Title